CATALOGUE
OF
PREHISTORIC ANTIQUITIES
IN THE
INDIAN MUSEUM

J. COGGIN BROWN

ARCHÆOLOGICAL SURVEY
OF INDIA

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ARCHAEOLOGICAL SURVEY OF INDIA

CATALOGUE RAISONNÉ

OF THE

PREHISTORIC ANTIQUITIES IN THE INDIAN MUSEUM

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BY

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SIMLA
GOVERNMENT CENTRAL PRESS
1917

Price Rs. 1-8 or 2s. 4d.

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INTRODUCTION.

Most of the prehistoric antiquities of the Indian Museum, which are described in this catalogue, were collected by officers of the Geological Survey of India between 30 and 40 years ago; some specimens have since been added by members of the Archæological Survey of India; and a few have been obtained through the generosity of private individuals. The compilation of this catalogue was undertaken at the wish of Sir John Marshall, Director-General of Archæology in India, in whose charge the collections now rest, and *pari passu* with its preparation the implements themselves have been systematically arranged and labelled in the museum, after having lain for many years in disorder and neglect.

The arrangement I have adopted is primarily chronological and secondarily geographical. Chronologically, I have divided the collections into the following four groups, which are now universally recognised as important stages or eras of culture in the early development of the human race.

1.—THE PALÆOLITHIC OR RUDE STONE AGE.

In the present state of prehistoric archæological science in India it is impossible to subdivide the Pleistocene period into shorter stages, as has been accomplished with such success in Europe, and, until detailed investigations are carried out in caves or in the river deposits of this country, it is unlikely that any further advance will be made. The industrial remains left by the races which inhabited India in the earlier days of human history are strictly comparable with similar types found in most other countries of the world, but whether the periods to which they are supposed to belong really synchronise with the stages recognised in Europe, is a matter which cannot be decided at this juncture.

Indian palæoliths are massive rock fragments, in the vast majority of cases composed of quartzite, chipped into cleaving, smiting and perhaps digging implements, exactly resembling the early stone age implements found in Northern and Southern Africa, Central America, and in Europe. Bruce Foote was of the opinion that ten distinct forms could easily be recognised, but I prefer to divide the Indian Palæolithic artifacts into three types, namely: *bouchers*, which correspond to the English "celt" and the French "coup de poing" or "hache a talon"; *palæoliths*, in which I

include the axe and cleaver-like forms including the "Madras" and "Guillotine" types; and *discoid* forms.

In appearance these types approach nearest to those from the *Chellean* and *Acheulean* periods of Europe.

The first chipped stone implement found in India was discovered by the late R. Bruce Foote, of the Geological Survey of India, on May 30th, 1863, at Pallavaram near Madras, and from that time to the present day they have been found in ever increasing numbers. To a great extent they are localised in Southern India, but a few specimens have been collected in the Central Provinces, in Bihar and Orissa and in Rajputana. They have not as yet been obtained from Burma, Assam or the Himalayan region.

The situations in which the implements have been discovered can be divided into two groups: the first in connection with the high level gravels or older alluvium of rivers and, in certain cases, of lakes; the second, in, or in association with, the high level lateritic formations of the Coromandel coast.

I have given full details of the occurrence of all specimens for which information is available, in the commencement of the chapters of the catalogue, and it is unnecessary to repeat them here. Only two cases are known in which palæoliths have been found in direct association with the bones of extinct animals. The first is the specimen found by Hackett at Bhutra, Narsinghpur district, in the gravels of the Nerbudda valley[1]. The second is one obtained by Wynne from the bone-bearing gravels of the Upper Godavari valley at Mungi, near Paithan, in Hyderabad[2]. The former is a beautifully worked boucher and the latter a worked flake. It has been stated that the formation of the gravels in which these implements were discovered may have commenced some 400,000 years ago.

Palæoliths that have been exposed to the action of atmospheric agencies for long periods of time develop a peculiar surface lustre which I refer to as "tinting".

The carved bones and marked teeth of Magdalenian aspect found by Foote in a cave in the Karnul district of Southern India are now lost, but it is necessary to mention them here.

No human remains belonging to the Palæolithic period have yet been found in India.

2.—THE NEOLITHIC OR POLISHED STONE AGE.

The theory that a great period of time intervened between the last appearance of Palæolithic workmanship and the earliest recognized remains of

[1] See Plate IV, 6 and 6*a*.
[2] See Plate IV, 3.

the Neolithic races of the Indian Empire, receives strong support from geological evidence, especially in Gujarat.

In the valley of the Sabarmati river in that region, Foote discovered that typical palæoliths were deposited by flood action in a bed of coarse shingle, over which more than 50 feet of other alluvial materials were piled by the action of the river, and over this again nearly 200 feet in thickness of blown loess was heaped by the westerly winds from the Gulf of Cambay and the Rann of Cutch. On the top of the high level loess, which occurs in the shape of small plateaus at intervals, capping the alluvial banks or on the top of isolated loess hills away from the river, the earliest remains of the Neolithic people were discovered. After the disposal of their flake knives and celts, the river ceased to deposit and since then has cut away its older alluvium for more than 100 feet.

The relics of the Palæolithians are localised to a great extent in Southern India, but the artifacts of the Neolithians are spread over a much wider area. At the same time their distribution appears to have been influenced to some extent by the occurrence of rocks suitable for the manufacture of these peculiar types of implements. For example, south of the Cauvery, Neolithic implements are rare; on the other hand, they have been found in great numbers in the northern parts of the Deccan. The extreme rarity of trap rocks in the former area and their relative abundance in the latter are held to be sufficient reason for this, as such rocks were used almost without exception in the manufacture of Neolithic celts.

Neolithic implements are distributed over a large part of Southern India, especially in the districts of Salem, Anantapur, Kurnool and Bellary, and they are common in Hyderabad. They occur all along the ranges which border the Gangetic plains on the south, and are very prevalent in Bundelkhand, in certain parts of the United Provinces, and in the northern districts of the Central Provinces. Many examples have been obtained in Gujarat, but the vast area which lies between it and the southern parts of the Bombay Presidency does not appear to have been examined yet. Recorded instances of their occurrence in the Punjab, Rajputana and Sind (with the exception of the famous cores and flakes from Rohri on the Indus) are rare, but the prehistoric antiquities of these provinces have not received much attention. A few finds have been reported from the Gangetic alluvium, from the Assam valley, and from the Naga Hills. Though of extreme rarity in the flatter parts of Bengal, they are to be found in the Highlands of this province and in Bihar. Collections have been made in the outer Himalayas, in Burma and the Shan States, and in Yunnan, while specimens are also known from Baluchistan and Seistan. The variety of implements and

tools produced in the Neolithic period in India is very much greater than in the Palæolithic. The Foote collections in the Madras Museum contain not less than 73 distinct types, of which 41 belong to the ground and polished division, and 32 to the unpolished class, but, with few exceptions, they are identical with such objects from Europe and other countries. The Palæolithic races favoured light-coloured quartzites for their work, whereas the Neolithic remains are almost without exception fashioned from the dark trap rocks which occur so plentifully in the dykes traversing the crystalline strata of the southern peninsula, or intruding into the younger beds, such as the Dharwar and Cuddapahs, which overlie them, or from the great lava flows of the Deccan Trap itself.

The following list of the various tools, implements and ornaments made in the Neolithic period was compiled by Foote, and, although all the forms mentioned are not represented in the Indian Museum collections, it will suffice to show how great their variety really was.

Ground or carved, and ground and polished objects.

1. Adzes, 2 types.
2. Amulets.
3. Anvils.
4. Axe-hammers, 3 types.
5. Beads of many types and stones.
6. Buttons.
7. Celts of 12 types.
8. Chisels of 6 types.
9. Corncrushers.
10. Cylinders.
11. Discs.
12. Figurines, human.
13. ,, animal.
14. Hammers, square.
15. ,, round.
16. ,, belted.
17. Hammerstones.
18. Hones.
19. Mace heads.
20. Marbles (toys).
21. Mealing places on rocks *in situ*.
22. Mealing stones, 2 types, flat and rounded
23. Mealing troughs, 2 types, deep and shallow.
24. Mortars.

25. Mullers.
26. Net-sinkers.
27. Palettes for rouge.
28. Pencils of steatite.
29. Pestles.
30. Pivot stones.
31. Pounders.
32. Polishing grooves.
33. Slabs for grinding.
34. Slick stones.
35. Stone, vessels of.
36. Steatite, vessels of.
37. Tally stones.
38. Thumb stones.
39. Whet stones.
40. Phalli.
41. Pendants.

Unpolished Artifacts.

1. Anvils, rough.
2. Arrowheads, 3 types.
3. Bone splitters.
4. Burins, 2 types.
5. Cores, 6 types.
6. Discs.
7. Flakes, 5 types.
8. Flakers.
9. Knives.
10. Lance heads.
11. Lancets.
12. Mallets.
13. Potting stone for potters.
14. Pendants.
15. Saws.
16. Scalpels.
17. Scrapers, oval large.
18. ,, small round.
19. ,, extended.
20. Selected stones of many kinds for various purposes.
21. Sling stones.
22. Spoke shaves.

23. Wedges, worked.
24. ,, unworked.

The several types of celts, twelve in number, which are recognisable are described as follows :—

1. Celts with oval edges.
2. ,, ,, square edges.
3. ,, ,, narrow edges and cylindrical bodies.
4. ,, ,, pointed butts.
5. ,, ,, blunt butts.
6. ,, ,, round sides.
7. ,, ,, bevelled sides.
8. ,, ,, square sides.
9. ,, ,, square shoulders.
10. ,, ,, curved edges.
11. ,, ,, short and thick body. Battle-axe type.
12. ,, ,, thin bodies, prototype of iron axe.

Of the chisels, six well—marked types are to be distinguished :—

1. Chisels with square bodies.
2. ,, ,, cross cut edge and very thick body.
3. ,, ,, thick, triangular body.
4. ,, ,, narrow, thin body.
5. ,, ,, broad with elyptical edge.
6. ,, ,, sharp point.

Of the axe-hammers, two types are to be recognised :—

1. Axe-hammer with a narrow, long body.
2. Axe-hammer with a short, thick and broad body.

Of the adzes, two types are to be recognised :—

1. Adze, short.
2. ,, long.

The latter is closely akin to the Polynesian type.

It has already been pointed out that for the manufacture of celts the Neolithic peoples almost invariably made use of trap, but for other implements such as mealing stones, hammerstones, flakers, etc., they used various materials, such as granite, gneiss, hematite, quartzite, and grits of the Dharwar and Gondwana systems. The so-called "pygmy flints", which are found in great profusion amongst the off-shoots of the Vindhyans in the United Provinces, Rewa and Baghelkhand, and which are believed to be of Neolithic age, together with the cores from which they are derived, are of chert, agate, jasper and carnelian, often of beautiful tints. They

have been obtained from the open surface of the ground, from under earthy deposits on the floors of rock shelters and caves, and from tumuli which also contained bones and pottery. The walls and roofs of the caves which yield pygmy flints, are sometimes decorated with rough drawings in ruddle or hematite. Similar ones, illustrating hunting scenes, occur in the Kaimur Range, and it is believed from the primitive outlines of the depicted weapons that some of the drawings are of Neolithic age. Beautiful examples of this art have recently been found in caves near Raigarh, in the extreme east of the Central Provinces. Specimens of earthy red hematite, which have been rubbed down to produce a red colour-wash, have been discovered at no less than thirteen Neolithic sites in the Deccan, while the collection of the Indian Museum contains many specimens from the Hazaribagh district in Bihar. Two small palettes for grinding down this material to produce rouge have been described from Bellary, and from Maski in the Raichur Doab.

The great accumulations of prehistoric scoria which have been found in Southern India, chiefly in the Bellary district, are believed by some authorities to date from Neolithic times owing to the occurrence of numerous celts and other objects on them. It is possible, however, that they are cremation sites of later date, though the problem is not likely to be settled until they have been excavated.

Megalithic tombs in a great variety of forms occur in the central and southern parts of the Peninsula. From the Bellary district alone, over two thousand have been recorded. As far as can be judged at present, the majority belong to fairly modern times, others to the Iron Age, while a few may be Neolithic. The type of Megalithic tomb, so common in the Deccan, which has a small hole in one of the walls, is also distributed throughout Britain, France, Central Germany, Scandinavia, Sardinia, Syria and the Caucasus. The cup markings found on the stones of dolmens in some countries are not unknown in India. Recently examples have been found in Kashmir. According to some authorities burial of the dead was practised by the Neolithians, and instances which are held to prove this are recorded from South Mirzapur, Madras, Mysore and Rajputana. A certain part of the great necropolis at Adichanallur in the Tinnevelly district may be ancient, but there seems good reason to believe that the greater part of it is of more recent date. There is a very remarkable resemblance between the oblong terracotta sarcophagi standing on short legs, found at Pallavaram in the Madras district, and probably of Neolithic age and certain terracotta coffins discovered near Bagdad, and also between the latter and the more highly developed and ornamented Etruscan terracotta coffin-tombs. This similarity of interment in earthenware coffins, identical in shape, size and material, has given rise to interesting

speculations connecting archaic Indian civilization with that of Babylonia and Assyria. The hut-urns, which were apparently used for funeral purposes in Neolithic times, are the prototype of the later hut-urns now met with in various parts of this country. Two forms of the earliest Etruscan hut-urns figured in Birch's "History of Ancient Pottery" very strongly resemble modern forms, such as those occurring at Harsani in Baroda, and a large group of very fine ones discovered by Foote near the great ford over the Tapti, some miles east of Mandu in the Surat district.

Many finds of prehistoric pottery are tentatively considered to be Neolithic. These are distributed through the districts of Anantapur, Cuddapah, Kurnool, Tinnevelly, Salem, Bellary and across Mysore, Hyderabad, Baroda, Kathiawar, Baluchistan and other regions. In South India, pottery is often met with on the sites of Neolithic settlements and implement factories, but the collocation of pottery and Neolithic implements is by no means an absolute criterion for determining the age of the latter, especially as it is exceedingly difficult to distinguish the Neolithic from the later Iron age ceramic ware. In the British Isles, the Neolithic wares are indistinguishable from those usually regarded as belonging to the early Bronze age, and neither the comparative coarseness of fabric, nor the style of the ornamentation enables the products of successive periods to be distinguished. We are confronted with the same difficulty in India, although Foote has ventured the following opinion. "The facies of the typical Neolithic pottery will, I believe, turn out to be dull-coloured and rough surfaced with but little decoration, whereas the true Iron age vessel is distinguished by showing rich colours and highly polished surfaces, with, in some cases, elaborate and artistic mouldings. There has been a true evolution in the potter's craft which then attained to a stage of very real beauty. This was probably before the great Aryan invasion. The pottery of the protohistoric early Buddhist times as found on the great mounds at Gudivada in the Kistna district, shows many changes from the typical Iron age finds of Narsipur, Singam, and West Hill, in Mysore, Malyam in Bellary, and Patpad in the Kurnool district."

3.—THE COPPER AGE.

Southern India never possessed a Copper or Bronze age culture, and as far as research shows at present, the Neolithic period in the Peninsula passed directly into the Iron age, so that the numerous bronze objects, many of which are of great beauty, from the cemetries of the South, do not belong to an age characterised by the sole use of that alloy. Needless to say India is

not the only country in which an Iron culture was not preceded by one of Copper or of Bronze.

Before considering the case for Northern India it will be useful to give a list of the recorded prehistoric copper finds in this region. Implements composed of practically pure copper have been found at eighteen sites in Northern India, eight of which are in the Upper Ganges valley, four in Bengal and Bihar, one in the Central Provinces, two in Baluchistan and two in the North-West Frontier Province. I am convinced that a few other discoveries have been made, but I am unable to trace any records of them in literature available to me, and it is doubtful if they have been recorded at all.*

List of the Copper Age antiquities of Northern India.

Rajpur, Bijnor District, United Provinces. — This locality yielded 16 objects, namely: 9 flat celts, 1 long bar-celt, and 6 barbed spear or harpoon heads. They were received into the Lucknow Museum in 1896.

Mathura on the Jumna. Lat. 27° 30′: Long. 77° 40′. — At this place Cunningham excavated a flat copper celt. Copper harpoon heads are said to have been frequently found in the vicinity, but no particulars are available or specimens preserved.

Mainpuri, between the Ganges and the Jumna. Lat. 27° 14′: Long. 79° 3′. — The Calcutta collection contains 2 flat celts, 1 barbed harpoon head and 1 set of rings from this locality.

Fatehgarh on the Ganges. Lat. 27° 23′: Long. 79° 36′. — Thirteen swords and a curious symbolical object, which may represent a human figure, were obtained here. The latter and the swords are in the Calcutta collection.

Niorai, Itawa District, about Lat. 26° 40′: Long. 79″. — The Copenhagen Museum contains 1 barbed spear or lance head and 1 sword from this place.

Bithur on the Ganges. Lat. 26° 37′: Long 80° 18′. — This locality has yielded 2 celts and 3 lance or harpoon heads which are now in the Calcutta and Lucknow museums.

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* While these pages were passing through the press, I examined a copper arrowhead from Cambellpur and learnt of further recent discoveries of copper implements in the United Provinces. The latter are to be described in the *Journal of the Asiatic Society of Bengal* by the Curator of the Lucknow Museum. Still later, I have examined numbers of flat copper celts from various localities in Bihar. These were submitted to me by Sir Edward Gait, K.C.S.I.

Spear and harpoon heads obtained from the bed of the Ganges are said to be stored in large numbers in the temple of Somesvara Mahadeva at Pariar, but no specimens have reached any museum.

Pariar near Bithur. Cawnpore district.

In 1892 Sir A. Cunningham presented a small narrow celt to the British Museum, which he had obtained at this place.

Kosam, Allahabad district, about Lat. 25° 20′: Long. 81° 30′.

Tamajuri, Midnapur district, Bengal. Lat. 22° 35′: Long. 86° 40′.

A shouldered celt was obtained near this village.

Five pieces of smelted copper, three of which are supposed to be unfinished celts of the Midnapur type, are exhibited in the Calcutta collection.

Karharbari, Hazaribagh district, Bihar.

A heavy axe head, and a large armlet now in the Foote collection in Madras, seem to be the only specimens of which any records are obtainable from the great cache of copper implements found some thirty years ago in the neighbourhood of the Baragunda copper mine by Dr. Saise.

Baragunda, Hazaribagh district.

Bhagotoro, Karachi district, Sind. Lat. 26° 26′: Long. 67° 54′.

A copper celt is recorded from this locality, but it appears to be lost.

Copper arrow heads, associated in one instance with a silver bracelet, are said to have been found here.

Kohistan Hill and Tank, probably not very far from Gwadar, Baluchistan.

According to Sir John Evans the Gungeria hoard is "the most important discovery of instruments of copper yet recorded in the old world." The locality lies much further south than the others. In 1870 no less than 424 hammered copper implements, made of practically pure metal, weighing collectively 829 pounds; and 102 thin silver plates, weighing 80½ tolas were discovered here. "The copper implements were extremely varied in form, principally consisting of flat celts of many different shapes. There are also many long crowbar-like instruments with an expanded lunette-shaped chisel edge at the lower end, which may be designated as "bar celts." The silver objects are all laminæ, about the thickness of ordinary paper, comprising two classes, namely, circular discs and "bulls' heads." (See Plate X) "The surprisingly large number in the Gungeria hoard of very distinct implements, adaptable to a great variety of domestic, agricultural, or warlike purposes, affords conclusive evidence that at one time the manufacture of implements of pure copper was conducted

Gungeria. Lat. 22° 25′: Long. 80° 8′. Balaghat District, Central Provinces.

in India upon an extensive scale. It is impossible that more than 400 such implements should have been collected in a single deposit, unless they were of a kind in common, ordinary use" (Vincent Smith).

The Gungeria deposit, although found south of the Nerbudda river, is clearly to be associated by reason of its contents with Northern India.

Doubts have been cast on the extreme antiquity of the find because of the association of the silver ornaments, but I see no reason to suppose that a race acquainted with the difficult metallurgical processes by which copper is extracted from its ores, should not be equally able to smelt silver too, perhaps from some of the highly argentiferous galenas which are known to occur at some localities. Again, the high antiquity of metallic silver pieces is proved by their having been met with in very early deposits in Spain and the Mediterranean region.

Shalozan, Kurram, North West Frontier Province.

In 1913, a flat copper celt with two projecting lugs was found near this village. It is now in the Peshawar Museum.

Saguna, Palamau, Bihar.

In 1914, a primitive flat copper celt was submitted to me by Sir Edward Gait, K.C.S.I., C.I.E., for examination from this locality, where it was ploughed up by a villager in 1910.

These discoveries prove the range of copper implements all across Northern India almost from the Hooghly to the far side of the Indus, and from the foot of the Himalayas to the Cawnpore district.

Prehistoric Bronze Implements of India.

There are only seven recorded implements from the Indian Empire to which the term "bronze" can with propriety be given. As none of them are in the Calcutta collection, I do not propose to give details of them here. The occurrence and composition of each, so far as it is known, has been investigated by Mr. Vincent Smith, and, as I am in agreement with his conclusions, I cannot do better than quote them.

"My conclusion is that the Jabalpur celt is the only undoubted example of a prehistoric implement found in India which was made of true bronze, deliberately and knowingly manufactured as such. That example being unique, I infer that it must have been of foreign origin ..... I am satisfied that the evidence is far short of the amount required to prove the existence of an Indian Bronze Age."

We conclude, therefore, that so far as our existing knowledge goes, India as a whole had no Bronze Age; that in Southern India the Neolithic

period passed directly into the Iron Age ; and that in Northern India a Copper Age intervened between the Neolithic period and the Iron Age. The questions may be asked. What was the duration of the Neolithic or of the Bronze Age periods of culture ? When did they commence and when did they end ? Such questions cannot at this juncture be answered. Even in countries where a great deal of attention has been devoted to prehistoric archæology, and where stratigraphic successions have been worked out, attempts to assign a precise date to the remote and obscure commencement of the Neolithic Age, are more than likely to be misleading. In India, any attempt of the kind is impracticable.

4.—EARLY IRON AGE ANTIQUITIES.

The transition between the Palæolithic and Neolithic Ages is very illegible; for the races whose cultures we know characterised each period, appear to have been separated by a great lapse of time. On no other hypothesis can we account for the abrupt change of workmanship, the sudden variation of implements and weapons which denote a different people with a different mode of living.

It is improbable that in Neolithic times a uniform degree of civilization was attained throughout India, nor is it any more probable that the new arts of the Copper or early Iron Ages were received into, or evolved and developed simultaneously throughout the continent, using the term in its broadest sense. As a recent writer has expressed it " Relative advances towards a higher civilization are notoriously uneven, and districts in advantageous positions certainly make changes soonest."

No protohistoric or prehistoric sites have yet been discovered in this land which reveal full successions of cultures of consecutive periods, comparable with those known in some other countries. When such sites are found and investigated, the insurmountable difficulties which stand in the way of chronology at present, will doubtless be overcome. The question of the exact date of the introduction of iron into Southern India has been approached in another way. Foote has pointed out, on what appear to be good grounds, that the Neolithic races of the Southern Peninsula did not possess any seafaring inclinations. Vincent Smith doubts whether the maritime commerce of the South Indian ports on any considerable scale, goes back to very remote ages, and, further, believes that the substitution of iron for stone in Dravidian India probably took place under the influence of foreign example and teaching from and after 700 B.C. This is about the time when the intrusive northern races began to penetrate the broad

barrier of jungle which then covered the natural defences of the Vindhyans and associated ranges. The date is obtained from that of the writings of Panini, who, according to Goldstucker and Bhandarkar, flourished about 700 B.C. and knew nothing of the South. Kātyāyana, who is supposed to have lived about 400 B.C., was acquainted with some of the races of the extreme South; and Patañjali, who flourished about 150 B.C., shows an intimate acquaintance with Southern India. "The probability seems to be that the Indian Aryans had no knowledge of Southern India prior to the seventh century before Christ and that such knowledge was acquired between the times of Pānini and Kātyāyana." (Vincent Smith)

Speaking generally, in the most advanced countries metal superseded stone some 5,000 to 6,000 years ago, so that the introduction of metal into Southern India came at a very late period.

In Northern India a totally different set of circumstances is met with, and the first use of iron must be carried back to very remote antiquity. To quote again from Vincent Smith,— "literary evidence indicates that the introduction of iron into the north-west of India was subsequent to the compensation of the Rig Veda and anterior to that of the Atharva Veda." The latter work, "which is mentioned in the Satapatha and Taittiriy's Brāhmanas, as well as in the Chhāndogya Upanishad, is certainly very old, and anterior to, or, at least, not later than, 1000 B.C."

In Babylonia iron came into use towards the close of the period 1500-1000 B.C., though it was not generally employed before the year 1000 B.C. There is reason to believe that the early introduction of iron into India may be due to the spread of knowledge from the basins of the Euphrates and Tigris to that of the Indus.

Before 1000 B.C., the place now taken by iron was occupied by copper, which for some milleniums earlier had supplied the material from which weapons and implements had been made. The flat copper celts, which have been found at so many sites in Northern India, are obviously copies of Neolithic patterns in stone, and although their flat shape may not prove as much as it would in Europe, owing to the absence in India, as far we know at present, of direct evolution from the flat type through the winged to the socketed form, a high antiquity is claimed for them. The harpoon, lance or spear heads associated with them, must be of much the same age. Similar examples from Ireland are dated 1800-2000 B.C., though I do not claim this as an argument in dating the Indian specimens. The variety of types in the Indian copper implements denotes a development which must have extended over a very considerable period of time. If the assumption that the knowledge of the use of iron came to

India from Babylonia is correct, there is some reason to suppose that the art of smelting and casting copper may have come from that direction too. The copper implements of Telloh in Babylonia go back probably beyond 4000 B.C., which proves the extreme antiquity of copper in that country. In Egypt, copper was the only metal in use during the first three dynasties (about 4400-3800 B.C.)

The geographical divisions which have been adopted in this catalogue, and which can be seen in the list of contents, are the best that could be devised considering the scattered distribution of the material.

In the preparation of the catalogue I have made free use of the works of Foote and Vincent Smith, and in a lesser degree, of other authorities whose names are quoted when their papers are referred to.

This work is not intended as an introduction to the study of prehistoric industry. The reader who desires this information should consult the British Museum guides to the Antiquities of the Stone and Bronze Ages.

PALÆOLITHS.

KURNOOL DSTRICT.

The Kurnool district has yielded abundant palæolithic remains. The ones represented in the collection were obtained by R. B. Foote and W. King of the Geological Survey of India in the years 1865 & 1866, and an account of the circumstances of the finds is given in the *Proc. Asiatic Soc.* for 1867, by Dr. King. The following notes are taken therefrom (*Loc. cit.* pp. 139-142) :—

In April 1865, frequent chipped stone implements of the different types which had already been met with by Foote and King in the neighbourhood of Madras, were found lying scattered over the surface of the eastern side of the Khoondair or central valley of the Kuddapah (Cuddapah) and Kurnool districts of that Presidency. They were principally found in that part of the valley which lies in the Kurnool district, and were generally of the flat oval form, that is, an oval, either long or short, having one end more pointed than the other, and with a more or less regular and wavy sharp edge all round the larger periphery of the stone, and in the same plane. Another form was the supposed axe head, with one straight edge at the longer end, met by lateral edges from the short end. It was not so commonly found as the former type. All were lying about more or less irregularly, sometimes out on the open plains and on the rising ground ; or, as was more frequently the case, in the beds of the little lateral valleys of the streams. In the latter cases, the implements appeared to have been washed out of the layer or layers of gravel and shingle which occasionally show in the banks of these lateral valleys.

The principal localities about which these implements were found were the villages of Roodrar and Madaypoor, and the country between as well as south and north of them. Several good specimens were found *in situ* about the same places. These occurred in deposits which King termed the "Implement Gravels", and which are only seen to any extent in this part of the country along the eastern side of the Khoondair valley. Here, these gravels appear in all the streams flowing from the Nallamalai Ranges, which border this side of the Khoond depression, and they are exposed in nearly every well that has been sunk within four to six miles of the base of the mountains. The deposit generally consists of a pale yellow and greyish coarse clay, more or less filled with coarse sandy particles, fine gravel, or shingle. The gravel and shingle occur in irregular layers which are sometimes quite separate, but generally they run into one another and often form a thick bed at

the bottom of the formation. Although never seen over 20 feet in thickness, there is every evidence of the gravels being thicker in places. The implement gravels are generally in the stream sections, overlaid uncomformably by a finer sandy deposit, with fine gravel, which has been found on the worn surface of the older accumulations. The same coarse lower gravels extend southwards to the Cuddapah basin presenting similar features; and thence they are found at intervals all the way down to the Madras area, where they contain the stone implements of the Trivellore Taluq. The gravel and shingle is all of quartzite or altered sandstone; generally well rounded and quite smooth. For the most part, the clay is calcareous, the contained debris being coated with *kankar*; but often it is ferruginous and mottled with red spots and patches of ferruginous matter, occasionally presenting a lateritoid character.

While King was working up the Madaypoor stream, he examined the banks as closely as possible, and at last recognised the apparently rounded and edged end of an implement just sticking out from the shingle bed in the bank. This turned out to be a good specimen of a pointed oval: it lay in one of the layers of pebbles and rectangular fragments of quartzites which occur in a thick bed of ferruginous and latertic sandy clay, at seven feet below the present upper surface of the bank. Nearly immediately above this layer, at about four feet from the surface, a second implement of a ruder shape was picked out, still a pointed oval, but rather thick than flat, as the ovals generally are. At the bottom of this bank and section there was a very coarse gravel and breccia in a kankary matrix, and from the surface of this, another rude implement was extracted. Again, some seventeen miles further south, two implements were found *in situ* in the banks of the Ullamoor stream. They were associated with gravels much the same as those already described, the one in the face of the bank, at 4 feet from the surface; the other on the sloping edge of a cemented gravel bank in the bed of the stream. They were both flat ovals.

King also draws attention to the occurrence at certain points, along the banks of these streams, of scattered fragments of light and dark coloured chert, some of which looked like small manufactured flakes. The implements themselves were all of quartzite, and the general elevation of the part of the Khoondair referred to is from six to nine hundred feet above the sea.

676. Boucher, broad pointed oval, both sides chipped in middle; purplish quartzite. This and the following specimens up to and including No. 684, were found by R. Bruce Foote on the surface of lateritic gravel near Roodrar, Sirvâl Taluq, Kurnool district.

677. Boucher, medium, pear-shaped, thin ; weathered hematite-quartzite. R. B. F.

678. Palæolith, large, axe or cleaver, one face pebbled, one face flat, oblique edge ; brown tinted grey quartzite. R. B. F.

679. Boucher, large, shapely, elongated and curved oval ; dark bluish-grey quartzite. R. B. F. Pl. 1, Fig. 8.

680. Boucher, large, thin, broad pointed oval ; weathered, fine-grained quartzite. R. B. F.

681. Boucher, small, pear-shaped, part of butt replaced by joint plane ; banded weathered purplish quartzite. R. B. F.

682. Boucher, large, elongated, broad pointed oval ; purplish quartzite with discoloured lateritic gravel on surface. R. B. F.

683. Boucher, small, ovoid ; brownish weathered quartzite. R. B. F.

684. Boucher, small, pear-shaped ; brownish weathered quartzite. R. B. F.

685. Palæolith, medium, discoid, thin ; sharp edge all round ; brown tinted quartzite. Kistmunshatti galli, Kurnool district ?. W. King.

686. Palæolith, large, axe or wedge, flat sides, thick butt, sharp crescentic edge ; brown tinted bluish quartzite. Balapilly, Kurnool district. W. King. Pl. 1, Fig. 3.

687. Boucher, medium, pear-shaped ; very weathered discoloured quartzite. Balapilly. W. King.

688. Boucher, pointed oval, broken ; brown tinted grey quartzite. *In situ* Madaypoor stream. W. King.

689. Boucher, pear-shaped, thick, partly pebble-butted ; brown tinted quartzite. *In situ* Madaypoor stream. W. King. Pl. 1, Fig. 7.

690. Boucher, large, broken ; lateritic gravel sticking on face ; discoloured fine-grained quartzite. *In situ* Madaypoor stream. W. King.

691. Boucher, large, thin, elongated oval, point broken ; banded slatey-green quartzite. *In situ* Ullamoor stream. W. King.

692. Boucher, ovoid, shapely ; brownish tinted quartzite. Vertical banks of the Ullamoor stream. W. King.

693. Scraperflake, small, edge worked all round ; black chert. Madaypoor. W. King. Pl. 1, Fig. 6,

GUNTUR AND NELLORE DISTRICT.

Considerable areas of the coastal regions of these two districts are covered by thin superficial deposits of lateritic rocks, forming part of the band of sedimentary strata which generally lies between the old gneissic rocks and the recent coastal alluvium. Between the mouth of the Kistna and about Lat. 15°, these are particularly well-known owing to the researches of Bruce Foote, who has stated that all these deposits belong to the recent period, having been formed since man's advent upon earth, as proved in many cases by their containing traces of his handiwork, in the shape of chipped stone implements of palæolithic types. Wherever such implements were found, beds of shingle and gravel were also found, or traces of their having once existed there, or at no great distance. (See R. B. Foote, "On the Geological Structure of the Eastern Coast from Latitude 15° northward to Masulipatam." *Mem., Geol. Surv. Ind.*, Vol. XVI, Pt. 1., p. 86.)

Further to the south, we learn from W. King, lateritic deposits are not only spread out over the surface of the Nellore plateau, but are found in scattered patches all over the country. The outlying patches are found to merge by thin seams of gravel and pisolitic rubble into the heavy recent clayey gravels so frequent all over the Carnatic and in the Cuddapah basin, which are called the implement-bearing gravels, because the palæolithic quartzite implements so well known in the Madras Presidency are often found in them. The discovery of these implements was made just after King had left this Nellore country and taken up the northern edge of the Madras sheet, so that he had no further opportunity of ascertaining their occurrence in the country under description; but from the fact of his having found them nearly everywhere else on this coast in these lateritic deposits and in the gravels, it is highly probable that they do occur in the present area (W. King, "The Gneiss and Transition Rocks and other Formations of the Nellore Portion of the Carnatic." *Mem., Geol. Surv. Ind.*, Vol. XVI., Pt. 2, p. 71).

It may not be out of place to mention here that the number of finds of prehistoric remains in the Kistnah district to the north of Guntur is exceedingly small, and I only know of one recorded palæolith, found near Nandigama and now in the Madras Museum. Interesting protohistoric remains have, however, been discovered.

At the time when the palæoliths to be described below were discovered, the Guntur district did not exist. It was formed later out of the southern

half of the old Kistna district and the northern taluqs of the Nellore district. When used here the term refers to the older geographical division.

The following details of distribution are taken from Foote's work (*Loc. cit.* pp. 87, 91-92).

The lateritic conglomerate of the Ramapatam area, between Potelur and Gudlur (Goodloor), includes many angular quartz fragments, some of quartzite (broken pebbles) and a number of rather poorly made chipped implements and flakes, also of quartzite. From the Kandukur area several very fine implements were obtained, to the east and west of Kandukur itself and from Kondasamudram. Others were found in the northernmost part of the area, in the fringing laterite at Ippatam, close to the Kistna. A much larger number, however, was obtained from some of the outlying unmapped shingle patches, the more important of which will now be enumerated. They are especially numerous in the valley of the Maneru and its tributaries, where they occur at intervals all up the course of the river, at levels above the recent alluvium, *e. g.*, at Nakanampetta, near Maregunta, around Velegunla, at Sallawarpalle and at Kambaldinna; also at Kattakindapale, Mupad, Chintalpalem, and Kothapalle, all on the south bank of the river. Of the places on the north bank, two especially, Lingasamudram and Comarapallem (Bompeadopaud of the map), yielded many good implements, though but little remained of the shingle beds they had been preserved in. Further west still, implements were found associated with the shingle beds near Irur and Iskapalle, and in the one which lies like a talus at the eastern foot of the Vaimpad quartzite hills south of Pamur. In parts these beds are so immensely coarse, as to deserve the appelation of "boulder gravels." They are generally more or less ferruginous.

The most westerly point north of latitude 15° at which implements were found in this region is Ramiapalle, 23 miles north-west-by-north of Pamur, where considerable traces remain of a former extensive development of lateritic beds in the shape of lateritic gravels and dark red sandy clays.

The surface of this tract, and indeed of the whole area drained by the head waters of the Paleru, is much covered and obscured by drifts of bright red blown sand. The last shingle bed to be mentioned occurs far north of all the others at the village of Angulur Agranaram, 9 miles north of Vinukonda. Here a highly kankary shingle of gneiss and quartzite contains many rude, and some good, palæolithic implements.

195. Boucher, medium, rude, flat; quartzite. Rompicherla, Kistna district, R. B. F.

527. Boucher, large, shapely, pear-shaped, sharp edged; reddish stained grey quartzite. From the surface. Ramapatam. R. B. F.

532. Boucher, large, broad-pointed oval, pebble butted, one face flat; reddish-grey quartzite. On the surface, Tyloor, Nellore district. R. B. F.

538. Boucher, large, shapely, pear-shaped, pebble-butted; tinted yellowish-brown quartzite. Nellore district. R. B. F. 1866. Pl. 1, Figs. 11 and 11*a*.

558. Scraper, large, weathered, part missing owing to fracture along a joint plane; tinted quartzite. R. B. F.

671. Boucher, medium, pointed oval, broad pointed butt; fine-grained, dark grey quartzite. Kistna. W. King.

672. Boucher, small, pear-shaped; bleached reddish-grey quartzite. Kistna. W. King. Pl. 1, Fig. 5.

673. Boucher, medium, elongated oval, broad point, finely worked edge; very dark grey quartzite. Kistna. W. King.

674. Boucher, medium, sharp pointed oval; weathered reddish-brown quartzite. Kistna. W. King.

675. Boucher, very elongated, broad pointed, one face partly replaced by joint plane; banded ferruginous quartzite. Kistna. W. King. Pl. 1, Figs. 12 and 12*a*.

CUDDAPAH DISTRICT.

Specimens 5644-5843 were presented by Mr. Macleod, a former Collector of Cuddapah, who taught one of his peons to collect them. The stones were picked up from the surface "in hills, maidans and scrub jungles, at the following and many other places: Kanamalopalle, the Pullampet taluq Chitvel, and Kalasapad." *Cf.* Logan, *Old Chipped Stones of India*, pages 25-26.

5644. Boucher, small, pear-shaped, truncated point; reddish-brown quartzite.

5645. Palæolith; small, ovoid, weathered.

5646. Chipped fragment of quartzite.

5647. Chipped fragment of quartzite, weathered.

5648. Chipped fragment of quartzite, weathered.

5649. Chipped fragment of quartzite.

5650. Not an implement.

5651. Boucher, medium, oval, broad point, worn; hematite quartzite.

5652. Boucher, medium, irregular; tinted quartzite with calcareous incrustation.

5653. Missing.

5654. Palæolith, medium, chipped quartzite.

5655. Not an implement.

5656. Piece of chipped quartzite.

5657. Piece of chipped quartzite.

5658. Palæolith, medium, discoid, unfinished; tinted quartzite.

5659. Boucher, medium, irregular, small pebble-butt; tinted quartzite.

5660. Boucher, medium, pear-shaped; tinted quartzite.

5661. Palæolith, large, oblique edge; tinted quartzite.

5662. Fragment of chipped quartzite, very weathered and stained.

5663. Boucher, large, elongated oval, weathered; tinted quartzite.

5664. Boucher, small, pear-shaped; dark quartzite.

5665. Boucher, large, pointed oval, small pebble butt; brownish tinted quartzite.

5666. Boucher, large, pointed oval, weathered; tinted quartzite.

5667. Boucher, large, pointed oval, broken butt; tinted quartzite.

5668. Boucher, small, pointed oval; tinted quartzite.

5669. Palæolith, large, pebble faced; tinted quartzite.

5670. Boucher, small, irregular, curved point, weathered; tinted quartzite.

5671. Palæolith, small, straight edge, very weathered; tinted quartzite.

5672. Piece of chipped greyish quartzite.

5673. Scraper, large; tinted reddish-brown quartzite.

5674. Not an implement.

5675. Large cleavage fragment of chipped quartzite.

5676. Piece of chipped quartzite.

5677. Not an implement.

5678. Boucher, small, irregular pointed oval; tinted quartzite.

5679. Boucher, irregular pointed oval; yellowish-brown quartzite.

5680. Piece of chipped and weathered quartzite.

5681. Palæolith, medium, discoid; yellowish-brown quartzite.

5682. Boucher, medium, irregular, weathered; tinted quartzite.

5683. Boucher, broad pointed oval; quartzite.

5684. Palæolith, small, weathered; brownish tinted quartzite.

5685. Piece of worked quartzite.

5686. Not an implement.

5687. Boucher, pointed, elongated; one face flat cleavage plane; tinted quartzite.

5688. Palæolith, chipped and pointed fragment of quartzite.

5689. Scraper, large; tinted quartzite.

5690. Boucher, small, pear-shaped; tinted quartzite.

5691. Boucher, medium, oval; tinted quartzite.

5692. Not an implement.

5693. Boucher, medium, pear-shaped with broken point; reddish-brown quartzite.

5694. Piece of worked and pointed quartzite.

5695. Piece of chipped and weathered quartzite.

5696. Boucher, pear-shaped, medium; tinted quartzite.

5697. Piece of worked reddish quartzite.

5698. Palæolith, large, unfinished; from cleavage fragment of tinted quartzite.

5699. Chipped cleavage fragment; quartzite; rejected boucher.

5700. Boucher, large, unfinished, thick; tinted quartzite.

5701. Boucher, elongated oval, broad point; brownish tinted quartzite. Pl. 1, Fig. 4.

5702. Boucher, oval, medium; weathered quartzite.

5703. Boucher, pointed oval, worn and weathered; brown tinted quartzite.

5704. Palæolith, large, discoid, weathered; tinted quartzite.

5705. Missing.

5706. Not an implement.

5707. Piece of chipped and tinted quartzite.

5708. Boucher, large, broad pointed oval, weathered; hematite quartzite.

5709. Boucher, large, broad pointed oval, weathered; tinted quartzite, with calcareous incrustation.

5710. Boucher, medium, oval, broad point; tinted quartzite.

5711. Boucher, large, pointed oval; tinted quartzite.

5712. Chipped piece of quartzite.

5713. Boucher, medium, oval; stained quartzite.

5714. Boucher, irregular, pointed oval, part of face replaced by cleavage plane; tinted quartzite.

5715. Not an implement.

5716. Chipped piece of quartzite, very weathered.

5717. Boucher, broad pointed oval, very weathered; dark reddish quartzite.

5718. Piece of worked quartzite.

5719. Boucher, small, pear-shaped, pebble-butted; weathered tinted quartzite.

5720. Not an implement.

5721*a*. Not an implement.

5721*b*. Boucher, medium, pear-shaped, weathered; yellowish-brown quartzite. Pl. 1, Fig. 1.

5722. Boucher, medium, pear-shaped, weathered; dark reddish quartzite.

5723. Not an implement.

5724. Chipped quartzite fragment.

5725. Boucher, small, pear-shaped; tinted quartzite.

5726. Not an implement.

5727. Not an implement.

5728. Boucher, small, pointed oval; weathered tinted quartzite.

5729. Not an implement.

5730. Small piece of worked quartzite.

5731. Small piece of worked quartzite.

5732. Boucher, small; tinted quartzite.

5733. Cleavage fragment of quartzite, pointed.

5734. Boucher, small pointed oval; weathered tinted quartzite.

5735. Piece of worked quartzite.

5736. Palæolith, sub-rectangular; stained yellowish-brown quartzite.

5737. Boucher, small, rude, irregular oval; tinted quartzite.

5738. Chipped quartzite fragment, very weathered and stained.

5739. Boucher, pointed oval, one side pebble-faced; tinted quartzite.

5740. Not an implement.

5741. Boucher, small, pointed oval; reddish-brown tinted quartzite.

5742. Piece of chipped quartzite.

5743. Piece of worked quartzite.

5744. Scraper, large ; reddish-brown tinted quartzite.

5745. Piece of chipped quartzite, very weathered.

5746. Boucher, small, irregular ; tinted quartzite.

5747. Not an implement.

5748. Missing.

5749. Palæolith, medium, discoid, sharp edge ; tinted grey quartzite.

5750. Boucher, oval, irregular ; very weathered tinted quartzite

5751. Piece of brown tinted worked quartzite.

5752. Boucher, medium, pointed oval, pebble-butted ; tinted quartzite.

5753. Not an implement.

5754. Boucher, large, pointed oval, broken butt ; tinted quartzite.

5755. Not an implement.

5756. Boucher, small, worn, irregular oval ; tinted quartzite.

5757. Small piece of worked quartzite.

5758. Boucher, small, broken, pointed oval ; light quartzite.

5759. Not an implement.

5760. Piece of chipped quartzite. ? rejected boucher.

5761. Not an implement.

5762. Ditto.

5763*a* Boucher, unfinished, irregular oval ; brownish quartzite.

5763*b* Piece of chipped dark quartzite.

5764. Boucher, small oval, weathered ; reddish tinted quartzite.

5765. Not an implement.

5766. Ditto.

5767. Missing.

5768. Quartzite cleavage fragment, chipped and pointed.

5769. Boucher, broad pointed oval, small flat butt ; reddish quartzite.

5770*a* Piece of chipped quartzite.

5770*b* Boucher, oval, medium ; tinted quartzite.

5771. Scraper, large, worn crescentic edge ; tinted quartzite.

5772. Scraper, small, crescentic edge ; greenish quartzite.

5773. Piece of chipped quartzite.

5774. Piece of chipped quartzite.

5775. Boucher, very large, elongated, pebble butt, weathered; tinted quartzite. Pl. 1, Fig. 9.

5776. Not an implement.

5777. Scraper, medium; dark tinted quartzite.

5778. Piece of worked quartzite, weathered.

5779. Palæolith, medium, ovoid; weathered and bleached quartzite.

5780. Boucher, small, elongated oval; weathered tinted quartzite.

5781. Palæolith, large, ovoid, broken, sharp edge; tinted quartzite.

5782. Boucher, large, irregular; dark reddish quartzite.

5783. Boucher, medium pointed oval; reddish-brown tinted quartzite.

5784. Boucher, small, ovoid, reddish quartzite.

5785. Palæolith, chipped quartzite fragment.

5786. Boucher, small, irregular, pointed; tinted quartzite.

5787. Not an implement.

5788. Piece of chipped quartzite.

5789. Boucher, medium, pointed oval; weathered reddish quartzite.

5790. Not an implement.

5791. Palæolith, medium, discoid, worn; tinted quartzite.

5792. Not an implement.

5793. Piece of chipped and flaked quartzite.

5794. Piece of chipped and flaked quartzite.

5795. Palæolith, large, discoid; yellowish-brown quartzite.

5796. Boucher, irregular oval, weathered; tinted quartzite.

5797. Boucher, medium broad pointed oval, flat pebble-butt; tinted quartzite.

5798. Piece of worked quartzite. ? rejected boucher.

5799. Not an implement.

5800. Boucher, large, truncated, pebble-butted; tinted quartzite.

5801. Boucher, broad pointed oval, pebble-butted; tinted quartzite.

5802. Boucher, large, elongated oval; tinted quartzite.

5803. Boucher, elongated oval, weathered; tinted quartzite.

5804. Chipped quartzite fragment.

5805. Boucher, pointed oval, elongated pebble butt; tinted quartzite.

5806. Piece of chipped quartzite.

5807. Boucher, broad pointed oval, broken butt; reddish tinted quartzite.

5808. Boucher, medium, ovoid, broad point; tinted quartzite.

5809. Boucher, irregular oval, very weathered; tinted quartzite.

5810. Boucher, large, pointed oval, one face pebble-butted; tinted quartzite.

5811. Not an implement.

5812. Palæolith, chipped cleavage piece; tinted grey quartzite.

5813. Piece of worked quartzite, weathered.

5814. Boucher, large, truncated oval; tinted quartzite.

5815. Boucher, small, oval; weathered quartzite.

5816. Boucher, medium, pointed oval; tinted quartzite.

5817. Palæolith, large, chipped cleavage fragment; quartzite.

5818. Palæolith, small, subrectangular; hematite quartzite.

5819. Not an implement.

5820. Chipped piece of tinted quartzite.

5821. Palæolith, large, discoid, edged all round; tinted quartzite.

5822. Piece of chipped quartzite.

5823. Not an implement.

5824. Palæolith, large chipped piece of tinted quartzite.

5825. Not an implement.

5826. Boucher, ovoid, broad pointed; dark brown quartzite.

5827. Boucher, pointed broad oval; tinted quartzite.

5828. Not an implement.

5829. Boucher, ovoid, broad point; tinted quartzite. Pl. 1, Fig. 10.

5830. Boucher, medium, pointed oval, small pebble butt, weathered, tinted quartzite.

5831. Palæolith, large, unfinished, thick, slightly oblique edge; weathered tinted quartzite.

5832. Boucher, medium, pointed oval; weathered tinted quartzite.

5833. Boucher, large, elongated oval, thicker in centre; tinted quartzite

5834. Quartzite cleavage fragment.

5835. Boucher, medium, rude; tinted quartzite.

5836. Boucher, medium, irregular oval, broad point; tinted quartzite.

5837. Piece of chipped quartzite.

5838. Boucher, large, pear-shaped, pebble-butted ; tinted quartzite.

5839. Piece of chipped quartzite.

5840. Palæolith, large, broken edge ; tinted quartzite with calcareous incrustation.

5841. Chipped piece of quartzite.

5842. Scraper, large ; reddish sandstone.

5843. Palæolith, subrectangular, small, ovoid ; tinted quartzite.

The following specimens were all collected in the Cuddapah district in the neighbourhood of Rayachoti by C. A. E. Oldham of the Geological Survey of India :—

715. Boucher, medium, ovoid ; weathered trap.

728. Palæolith, discoid, large, sharp edges ; dark reddish quartzite.

729. Palæolith, small, chipped flake ; tinted quartzite.

730. Boucher, small, ovoid, rude ; reddish-brown tinted quartzite.

731. Palæolith, small ; tinted quartzite, flake knife ?

732. Palæolith, medium, axe-like, broken edge and butt ; tinted quartzite.

733. Palæolith, medium, flake knife ? ; purplish quartzite.

734. Boucher, small, pointed oval ; light brown tinted quartzite.

735. Palæolith, axe, straight edge, rounded sides ; light brown quartzite. Pl. 1, Fig. 2.

736. Boucher, medium, oval ; brownish tinted quartzite.

737. Palæolith, small, discoid, sharp edges ; dirty grey quartzite.

738. Boucher, ovoid, amande, medium ; dark steel-grey quartzite.

739. Boucher, oval, long, thin ; dirty bluish-grey quartzite.

740. Boucher, small, pear-shaped ; dark quartzite.

741. Palæolith, small ; chipped reddish-brown sandstone.

742. Boucher, medium, ovoid, rude ; dark hematite quartzite.

CHINGLEPUT AND NORTH ARCOT DISTRICTS.

Both these districts contain numerous traces of palæolithic man. On the 30th May, 1863, the first palæolith discovered in India was found by R. Bruce Foote in the debris from a ballast pit on the Brigade ground at Pallavaram, lying some little distance west of the Madras-Trichinopoly high road. In

connection with the early history of prehistoric research in India, it is interesting to note that W. Theobald of the Geological Survey of India had before this found a doubtful fragment of a stone implement in the Gangetic alluvium near the mouth of the Soane, whilst the first notice of the survivals of the polished stone age was H. P. Le Mesurier's communication to the Asiatic Society of Bengal, dealing with the celts he had found in large numbers in the valley of the Tons river in January 1860. On the 28th September, 1863, R. B. Foote and W. King jointly discovered the very important Palæolithic locality at Attrampakkam on the banks of the nullah falling into the Cotteliar. Foote has stated that the region to the north and north-east of the Attrampakkam site abounded in palæoliths, many sites yielding specimens washed out from the laterite, while in others he chiselled them from the lateritic rock. In the year 1864 he completed the geological survey of the Madras area down to the Palar river, and in doing so came across many localities in which quartzite palæoliths were met with. The further south the work was carried from the Cotteliar, and the great quartzite shingle conglomerates, the rarer the palæoliths became, and in the taluqs of Chingleput and North Arcot districts south of the Palar, which were surveyed by C. A. E. Oldham, none appear to have been found. The most southerly locality in the Chingleput district at which palæoliths have been discovered is Wallajabad, in the Palar valley.

Foote's earlier discoveries are described in: (1) A paper published in the *Madras Journal of Literature and Science* for 1864, entitled: "On the Occurrence of Stone Implements in Lateritic formations in various parts of the Madras and North Arcot Districts." An appendix by W. King, Junior, entitled "Notes on the Occurrence of Stone Implements in North Arcot Districts" accompanies the paper. (2) A paper read before the Geological Society of London on the 17th June, 1868, entitled: "On the Distribution of Stone Implements in Southern India." (3) A paper read before the International Prehistoric Congress at Norwich in August, 1868. (4) A detailed memoir on the geology of the Madras and North Arcot Districts, from which the greater part of the following paragraphs is composed. "On the Geology of parts of the Madras and North Arcot Districts lying north of the Palar River, and included in Sheet 78 of the Indian Atlas." *Mem., Geol. Surv. Ind.*, Vol. X, Pt. 1, 1873.

In certain lateritic conglomerates at various places in both districts, chipped stone implements of human manufacture are found imbedded, proving that man had set foot in the Peninsula prior to the formation of the gravels and conglomerates in question. The latter form the upper part of

the laterite series, which is referred to the Quaternary or Recent Period. Foote believed that the laterite was of marine origin, an opinion which was not accepted by other geologists of his day, and which is unlikely to find much support in these later times.

At Attrampakkam an implement was found *in situ* in a sandy clay bed, 10 or 11 feet below the surface. In the same nullah W. King found implements most unequivocally *in situ*, so firmly imbedded in hard conglomerate as to require considerable force to extract them. Others were discovered lying *in situ* on the bare exposed surface of the bed, fully six feet below the general surface.

On the high ground a mile to the north-east several implements were found weathered out of the rocky laterite; others were also met with on the surface of other laterite-covered areas further to the north-east, south-west and west, near the villages of Deandivakkam, Tumbul, and Panur respectively. On other laterite spreads, lying both north and south of the Narnaveram river, large numbers of implements were discovered, and in some cases chiselled out of the hard conglomerate rock. The implements found lying on the surface, had, doubtless, been weathered out of the rock they rested on; for in every case they presented precisely the same colour and degree of weathering as the accompanying scattered pebbles, the weathering out of which from the conglomerates could not reasonably be doubted.

The places at which quartzite implements were found imbedded *in situ* and had to be chiselled out of the laterite were, on the north side of the Narnaveram river, seven in number, of which three are especially worth mentioning; they are: (1) Caradepootoor (six miles south by east of Sattavedu), where a large spread of coarse lateritic conglomerate is exposed. Among the coarse quartzite shingle, here cemented into a very typical conglomerate, several implements were found; (2) Amerimbode (Amerumbardoo), where an implement was found imbedded in hard clayey laterite fully three feet below the surface of the bed, which itself was overlaid by several feet of red sandy loam.

Scattered through the scrubby jungle between this place and Maderapaucum to the north are many "Kurumbar rings" or circular enclosures of large rough blocks, in this case of laterite. Some of these contain kistvaens made of cut blocks of the same laterite. These ancient burying places stand on the same bed of laterite as the implement found at Amerumbode was imbedded in. The third locality occurs near the village of Cunnumbaucum, six miles north by east of Amerumbode. A large show of very typical laterite conglomerate is there met with, and in this a small quartzite implement of nearly oval shape was found imbedded in the hand

and undisturbed rock. Only a little of the edge of one side of this implement projected over the tolerably level surface of the rock, which was so hard that it took not much less than half an hour to chisel it out.

On the south of the Narnaveram river at Manjakaransi there is a rather remarkable outlier of "Cuddalore" grit capped by laterite conglomerate; here again implements were met with, though not *in situ*, but about one and a half miles to the south-east, on the much weathered surface of the laterite conglomerate over-hanging the Cotelliar river, several well made and well preserved implements were found lying among quartzite pebbles, evidently weathered out from the mass of the laterite. Several others were found imbedded, and chiselled out of parts of the rock, which was hard and unweathered.

All the implements found within the Madras area are made of quartzite, and so many show waterworn sides of old pebbles that it is very probable that all, or nearly all, were made from large pebbles or small boulders, such as occur in innumerable quantities in the conglomerate of the Sattavedu and Alicoor hills.

PALÆOLITHIC LOCALITIES IN THE CHINGLEPUT AND NORTH ARCOT DISTRICTS.

CHINGLEPUT DISTRICT.

South of the Cotelliar River—

Pallavaram, 10 m. S.-W. of Madras ...	... Foote.
Ooratur, 13 m. S.-W. of Paleavaram ...	... "
Panjur, 4 m. S.-W. by S. of Poonamallee ...	... Oldham, Foote and King.
Sriperamatur, 28½ m. W.-S.-W. of Madras	... Foote.
Parandur Tank, 8 m. N.-N.-E. of Conjeeveram	... "
Parandur village, 3 m. E.-N.-E. of outflow	... "
Tirumallavai, 2 m. N.-E. of Avadi station ...	... "
Puttur (Potur), 2 m. N.-E. of Tirumallavai, *in situ*	... "
Wallajabad, 12 m. N.-W. of Chingleput ...	...Henderson.
On the plateau S. of the Cotelliar, 7 m. N.-W. by	Foote.
N. of the Red Hills Lake, *in situ* ...	Cornish and Fraser.
N.-E. of the preceding locality *in situ* ...	... Foote.

North of the Cotelliar River—

Tumbool, 7 m. N.-W. of Tripasoore ...	... Foote.

Attrampakkam nullah, 7 m. N. by W. of Trivellore ...	Foote and King.
Caujallum village	Foote.
Manjakarranai hill, 5 m. S.-E. by E. of Vadamadurai ...	"
Devendavaucum, 8 m. N. of Trivellore, *in situ* ...	"
Goompalayam, $3\frac{1}{2}$ m. N. of Numbaucum	"
Malandoor, 3 m. N.-E. of Devendavaucum	"
Vadamadurai, 4 m. S.-W. of Arnee	"
Errycooppum, $2\frac{1}{2}$ m. W. of Vadamadurai	"
Nelway, 8 m. N.-E. by E. of Trivellore	"

North of the Narnavaram River—

Woodecottah, 14 m. N. of Trivellore	Foote.
Sirgulpilly ravine, 2 m. W. of Woodecottah ...	"
Modarimbedu, 4 m. S.-W. of Sattavedu	"
Boodoor, 2 m. S. of Sattavedu, *in situ*	"
Caradepootoor, N.-W. of Tank, 6 m. S. of Sattavedu, ... *in situ*	King.
Sattavedu, 27 m. N. by E. of Trivelore	"
Pandavaucum, $3\frac{1}{2}$ m. N.-E. of Sattavedu, *in situ* ...	"
Cunnumbaucum, 3 m. N.-E. of Panudavaucum ...	Foote.
Maderapaucum, $3\frac{1}{2}$ m. E. by N. of Sattavedu, *in situ*	"
Roshanuggur, 2 m. E. of Sattavedu, *in situ* ...	"
Amarambedu, 5 m. E.-S.-E. of Sattavedu, *in situ* ...	"
Ingavepolliam, W. of, *in situ*	"
Ingavepolliam, high ground S.-E. by E. of... ...	"
Pallur, 2 m. S.-E. by E. of Amarambedu	"
Pallur, high ground W. of village	"

NORTH ARCOT DISTRICT.

South of the Naggery River—

Paliamangalam, $1\frac{1}{2}$ m. S.-E. by E. of Arkonam Junction	Foote.
Arkonam Junction, N.W., N.-E., and S.-E. of ...	"
Chinnamapet Station, S. and S.-W. of	"
Chinnamapet Station N. of	"
Pyanoor, 4 m. N. of Chinnamapet Station	"
Maundoor, 4 m. N.-E. of Tritani	"

North of the Naggery River—

Naikenpalayam Trig. Station hill, W. and S. of ...	Foote.
Naggery town, 4 m. E. of, on N. bank of river ...	"
Panur, S.-E. of, on crest of the pass	"

Panur, 2 m. E. of ... ... Foote.
Cupudoo, 7 m. E. of Narnavaram town ... ... „

North of the Narnavaram River—

2 m. N. of Cupudoo, supposed palæolithic factory site ... King.

191. Boucher, small, broken, sharp edges, flat butt; weathered, ferruginous quartzite. North of the Red Hills, Madras. R.B.F.

192. Scraper, medium, sharp edge; ferruginous quartzite. Cunnumbaucum, 3½ miles north-east of Pandavaucum. R. B. F.

407. Palæolith, small discoid; mottled reddish and brownish quartzite. *In situ* in laterite. Madras district. R. B. F., 1863.

408. Boucher, small, elongated oval; greyish quartzite stained reddish-brown. Madras district. R. B. F., 1863.

409. Boucher, pointed oval, one face pebble-butted; brown stained grey quartzite. Madras district. T. L., 1863.

410. Boucher, ovoid, small; reddish-brown quartzite. Madras district.

411. Boucher, amande, large; stained grey quartzite. Madras district. R. B. F.

412. Boucher, large, oval, sharp edge all round; reddish-brown quartzite. Madras district.

413. Boucher, large, pointed oval (pear-shaped); reddish-brown quartzite. Madras district.

414. Flake, long, narrow, sharp sides; greyish-brown quartzite. On the surface, bank of the Attrampakkam. Figured as Plate XV. in Foote's paper "On the Occurrence of Stone Implements in Laterite Formations of the Madras and North Arcot Districts." *Madras Journal of Literature and Science* for 1864.

415. Boucher, large, pointed oval, one face pebble-butted; drab and yellowish-grey quartzite. Trivellore taluq, Chingleput District.

416. Boucher, very large, thick, oval, broken butt, sharp edge; reddish-grey quartzite. This and the following specimens, up to and including 525, are from the banks and bed of the Attrampakkam stream, Trivellore taluq, Madras District, (Chingleput District). They were all collected by Bruce Foote in 1863.

417. Scraper, small, weathered; greyish-white quartzite.

418. Boucher, medium, small pebble butt, oval; light brown quartzite.

419. Palæolith, flat, discoid, chipped edge; greyish-white quartzite.

420. Palæolith, elongated oval, sharp edge, one end broken; dark quartzite.

421. Scraper, ovoid, broken; banded bluish-grey and grey quartzite.

422. Palæolith, large, discoid; stained greyish-white and dark brown quartzite.

423. Palæolith, chopper or wedge type, pebble butt; greyish quartzite, tinted yellow and brown.

424. Boucher, medium, elongated oval, sharp edge all round, dark grey and brown banded quartzite.

425. Boucher, pear-shaped, sharp pointed, sharp edge; reddish-grey quartzite.

426. Boucher, large, oval, sharp sides, small pebble butt; banded dark brown and blackish quartzite.

427. Scraper, large; brown quartzite.

428. Scraper, large; brown quartzite.

429. Boucher, large, pointed oval, sharp edges; reddish-brown quartzite.

430. Boucher, medium, amande; brown quartzite.

431. Missing.

432. Flake, sharp; purplish and reddish banded quartzite.

433. Boucher?, notched on one face, truncated oval; greyish banded quartzite.

434. Boucher, small, pear-shaped; grey quartzite, tinted brownish-yellow.

435. Boucher, medium, thick butt, broken point; tinted quartzite.

436. Boucher, broad pointed oval; brownish quartzite.

437. Palæolith, small, discoid; greyish-white quartzite.

438. Palæolith, triangular section; mottled dark reddish quartzite.

439. Boucher, large, small pebble butt, sharp pointed oval; banded brown quartzite.

440. Boucher, small, shapely, one face pebble-butted; tinted light red and grey quartzite.

441. Boucher, amande, sharp edge all round; tinted light brown quartzite.

442. Boucher, large, long truncated oval; stained dirty yellowish quartzite.

443. Boucher, medium, rude, square-edged; banded greyish quartzite.

444. Scraper ?, large; banded white and grey quartzite.

445. Missing.

446. Boucher, medium, pointed oval; *in situ*.

447. Boucher, small, pear-shaped, broad point, sharp edge; tinted brownish quartzite. *In situ*.

448. Boucher, medium, elongated oval, sharp edges; reddish-brown quartzite. *In situ*.

449. Boucher, medium, oval, both ends broadly pointed, sharp sides; bluish-grey quartzite. *In situ*.

450. Boucher, medium, pear-shaped, shapely; banded pinkish quartzite. *In situ*.

451. Palæolith, large; bluish quartzite tinted brown. *In situ*.

452. Boucher, large, pear-shaped, broad pointed oval, one face pebble-butted; stained yellowish-grey quartzite.

453. Boucher, large elongated oval, broad point, sharp sides, shapely; light reddish-brown quartzite.

454. Scraper ? large; pinkish quartzite, weathered.

455. Palæolith, axe or cleaver, large; mottled brownish and grey quartzite.

456. Palæolith, small, discoid, one face flat, sharp edge; banded dark greyish-brown quartzite.

457. Palæolith, medium, discoid, sharp edge all round; brown quartzite. Figured in Plate 14, Foote's first paper.

458. Palæolith, small, discoid, sharp edge all round; tinted greyish quartzite.

459. Flake, chipped; trap.

460. Palæolith, small, discoid, one part pointed; reddish quartzite.

461. Boucher, medium, broken, pointed oval, sharp edges; bluish quartzite tinted grey.

462. Boucher, small, pear-shaped, very thick pebble butt; greyish-brown quartzite.

463. Scraper, large; yellowish-brown tinted quartzite.

464. Scraper, small; purplish quartzite.

465. Scraper ?, medium; mottled brownish-grey quartzite.

466. Scraper-knife, large, sharp edges; greyish quartzite.

467. Boucher, small, elongated oval, sharp edges; purple and yellowish-grey banded quartzite.

468. Palæolith, medium, discoid, one face flat; grey tinted quartzite.

469. Boucher, small, pointed oval, one face pebble-butted, sharp edges; hematite quartzite.

470. Palæolith, axe, oblique edge; brownish quartzite.

471. Scraper, large; mottled reddish and brownish tinted quartzite.

472. Boucher ?, long elongated oval, broad points; brown quartzite.

473. Scraper-knife; tinted dark brown quartzite.

474. Palæolith, discoid, rude, large, sharp edges all round; purple quartzite.

475. Boucher, large, small pebble butt, pointed oval; banded yellowish-grey quartzite.

476. Palæolith, ovoid, sharp edges all round; brownish quartzite.

477. Palæolith, axe ?, rectangular, parallel sides, unfinished; reddish quartzite.

478. Boucher, medium, elongated oval, oblique truncated; mottled brownish-grey quartzite.

479. Boucher, large, rude, unfinished, pebble butt, oval; reddish-brown quartzite.

480. Missing.

481. Boucher, large, pointed oval, truncated, one face pebble-butted; grey quartzite stained brown.

482. Palæolith, broad, axe type, oblique edge, parallel sides; yellowish-grey quartzite.

483. Boucher, small, broad pointed oval; stained brownish quartzite.

484. Scraper, large, ovoid; tinted white quartzite.

485. Scraper, large, shapely; tinted light quartzite.

486. Boucher, large, sharp pointed oval, butt partly replaced by joint plane; brownish quartzite.

487. Boucher, small, elongated oval, truncated, one face pebble-butted; tinted reddish-brown quartzite.

488. Boucher, medium, oval, thick; coarse reddish quartzite.

489. Boucher, small, shapely, pear-shaped, broad point, thick butt; dirt grey quartzite.

490. Boucher, small, oval, sharp sides; fine reddish quartzite.

491. Boucher, large, thin part of butt replaced by joint plane, broad point; brown quartzite.

492. Boucher, medium, broad, small pebble butt, sharp sides, oblique truncated point; stained brownish-grey quartzite.

493. Scraper, small; light brown quartzite.

494. Boucher, medium, rude, pointed oval; banded black and greyish-brown quartzite.

495. Boucher, medium, rude, broad pointed oval; mottled reddish-brown quartzite.

496. Boucher, small, pointed oval; brown and pinkish-grey quartzite.

497. Palæolith, axe or cleaver, straight edge; tinted brown and reddish quartzite.

498. Boucher, medium, pointed oval; hematite quartzite.

499. Missing.

500. Palæolith, small, discoid, edged all round; tinted reddish quartzite.

501. Palæolith, small, discoid, edged all round; tinted dark reddish quartzite.

502. Palæolith, small, discoid, edged all round, thick; reddish tinted grey quartzite.

503. Scraper, medium, thick; reddish stained quartzite.

504. Palæolith, discoid, flat, broken; weathered ferruginous quartzite.

505. Palæolith, medium, ovoid; weathered ferruginous quartzite.

506. Boucher, medium, oval, rude; weathered ferruginous quartzite.

507. Boucher, small, rude, broad pointed oval; stained reddish quartzite.

508. Boucher, large, pointed oval; weathered fine-grained ferruginous quartzite.

509. Boucher, medium, oblique truncated oval, small pebble butt; fine-grained grey quartzite.

510. Boucher, medium, pear-shaped, small pebble butt, shapely; weathered ferruginous quartzite.

511. Scraper, long, weathered, stained; brownish-yellow quartzite.

512. Flake, edges and one face worked; reddish-grey quartzite.

513. Palæolith, large, discoid, edge all round; dark grey quartzite.

514. Boucher, small, pear-shaped, thin sharp edge all round; light brown quartzite.

515. Palæolith, small discoid; reddish-brown weathered quartzite.

516. Scraper ?, double edge; light chocolate quartzite.

517. Missing.

518. Palæolith, wedge or chopper, straight edge, one face flat, partly pebble-butted; tinted grey quartzite.

519. Palæolith, large, axe or wedge, straight edge, sharp sides; greenish-grey quartzite.

520. Scraper, long; reddish-purple quartzite.

521. Palæolith, long, (triangular scraper ?), flat sides, pointed butt; purplish quartzite.

522. Boucher, medium, elongated oval, point broken, broad pointed butt; bluish-grey coarse quartzite.

523. Boucher, elongated oval, truncated edge, sharp butt and sides; grey tinted quartzite.

524. Boucher, elongated, truncated oval, thin broken point; coarse dark bluish-grey quartzite.

525. Boucher, scraper ?, triangular, sharp sides, pointed butt; light quartzite.

526. Boucher, large, broad oval, pointed, thin; yellow tinted grey quartzite. Madras district.

528. Boucher, small, broad oval, thin, sharp edge; brownish stained quartzite. On gravel bed, Chinnamapet hill, North Arcot District.

529. Boucher, medium, ovoid; weathered hematite quartzite. Sirgulputty ?, Chingleput district.

530. Palæolith, axe or cleaver, elongated, triangular, pointed butt; weathered and stained ferruginous quartzite. Sriperamatur ?, Chingleput district.

531. Boucher, small, pear-shaped; brownish quartzite. Pallur? near Amarambedu, Chingleput district.

533. Palæolith, small, discoid; stained ferruginous quartzite. *In situ* in hard laterite conglomerate. North end of Red Hills plateau, Madras district. R. B. F.

534. Boucher, medium, broad pointed oval, small pebble butt; tinted light brown quartzite. Sattavedu.

535. Worked flake, large, knife or saw; reddish tinted grey quartzite. Conjeeveram. R. B. F.

536. Boucher, medium, broken; coarse banded quartzite. Panur.

537. Worked flake, knife, small; tinted reddish-brown quartzite. On surface of laterite, Manjakarranai, Madras district.

539. Boucher, small, oval, broad point; stained brownish quartzite. Panur, North Arcot district.

544. Scraper, large; yellowish-grey quartzite. Devendavaucum, Chingleput district.

545. Boucher, medium, thin, point broken; yellowish-grey quartzite. Between Devendavucum and Kalavai.

546. Boucher, medium, point broken; coarse ferruginous quartzite. Sriperamatur, Madras district.

547. Palæolith, medium, axe or cleaver, broad edges; fine reddish-brown quartzite. Naikenpalayam, North Arcot district.

548. Boucher, small, elongated oval, truncated butt; reddish-brown ferruginous quartzite. Madras district ?.

549. Palæolith, discoid, medium, thick, sharp-edged; stained brownish quartzite. *In situ* in hard laterite, north end of Red Hills plateau, Madras.

550. Palæolith, large, elongated, discoid, one face flat; tinted bluish-grey quartzite. Attrampakkam.

551. Palæolith, medium, elongated, discoid, thick; stained mottled ferruginous quartzite. *In situ* in laterite conglomerate, Ingavepolliam.

553. Palæolith, small, discoid, thick, sharp-edged; fine-grained light chocolate quartzite. Rajah's Choultry, Chingleput district.

554. Boucher, large, elongated, broad pointed oval; dark ferruginous quartzite. Yadamadurai. Chingleput district.

555. Boucher, broad pointed oval; banded and tinted reddish-brown quartzite. Tukkool. Madras district.

556. Knife ?, both sides worked to point, thick butt; chocolate quartzite. 1¼ miles south of Ackeramperam, Conjeeveram taluq.

557. Boucher, medium, pear-shaped; dark reddish-grey quartzite. Same locality as preceding specimen.

559. Boucher, medium, pear-shaped, point broken; stained yellowish-brown quartzite. Woodecottah ?, Chingleput district.

560. Boucher, small, pointed oval; coarse tinted quartzite. Madras district.

461. Palæolith, large, discoid, thick; coarse pinkish quarzite. Sattavedu.

562. Boucher, large, pointed oval; weathered quartzite with ferruginous concretions. Woodecottah ?

563. Boucher, large, pointed oval; mottled greyish quartzite. Amarambedu ?, Chingleput district.

564. Palæolith, medium, oblique edge; tinted quartzite with ferruginous concretions. Same locality as previous specimen.

565. Missing.

566. Palæolith, cleaver ?, oblique edge, one face pebble-butted; stained reddish-brown quartzite. *In situ* three feet below the surface, Amarambedu, Chingleput district.

567. Boucher, ovoid, broken point, rude; weathered red ferruginous quartzite. *In situ*, Ingavepolliam, Chingleput district.

568. Boucher, small, pear-shaped, broken point, weathered ferruginous quartzite. *In situ*, Caradepootoor, Chingleput district ?.

569. Boucher, medium, pear-shaped, thin, broken point; stained red quartzite. Mailapur, Chingleput district.

570. Palæolith, small, cleaver or axe; tinted grey quartzite with adherent lateritic gravel. *In situ.*

571. Boucher, medium, oval; very weathered, stained, ferruginous quartzite. *In situ.*

572. Palæolith, small, discoid, one face flat, sharp edge; mauve-grey quartzite. This and the following specimens up to No. 670 are all from the banks or bed of the Attrampakkam Stream, Trivellore taluq, Chingleput district. Unless otherwise stated, they were found loose on the surface and not *in situ*. They were all collected by W. King of the Geological Survey of India, and acquired by the Museum in 1882.

573. Palæolith, chipped grey quartzite pebble.

574. Boucher, large, oblique pointed oval, thick butt; banded greyish and blackish quartzite.

575. Boucher, large, oval; very coarse reddish quartzite.

576. Palæolith, large, roughly chipped flake; reddish-grey quartzite.

577. Boucher, medium, pear-shaped, broken butt and point; mottled coarse reddish-grey quartzite.

578. Boucher, small, pointed, broad butt; coarse yellowish-brown quartzite.

579. Palæolith, very large, axe or wedge, oblique edge, parallel sides, small pebble butt; weathered fine-grained quartzite. Pl. II, Fig. 5.

580. Palæolith, scraper, thick sides, pointed butt ; coarse steel-grey quartzite.

581. Boucher, small, roughly pear-shaped ; reddish tinted quartzite.

582. Boucher, medium, triangular, broad point, sharp edged butt brownish tinted greyish quartzite.

583. Boucher, large, very pointed oval, part of butt missing ; mottled grey and dirty white quartzite.

584. Boucher, small, pointed oval ; hard fine-grained dark quartzite.

585. Boucher, broad, heart-shaped, thin ; hard fine-grained dark chocolate quartzite.

586. Boucher, large, one pebble face, broad pointed oval ; tinted weathered quartzite. Pl. II, Figure 3.

587. Boucher, medium, broad pointed oval ; dirty reddish-grey quartzite

588. Boucher, small, broad pointed oval ; dark steel-grey quartzite.

589. Boucher, small, pear-shaped, sharp pointed ; light steel-grey quartzite.

590. Boucher, large, broad oblique pointed oval ; fine dirty-grey quartzite.

591. Boucher, large, pointed oval, very sharp sides ; dark steel-grey quartzite.

592. Boucher, medium, broad, pointed oval ; made from joint fragment of quartzite ; two faces smooth and parallel.

593. Boucher, medium, pear-shaped, sharp point, small pebble butt ; dark brownish-grey quartzite.

594. Palæolith, medium, parallel sides, straight edge ; weathered light brown quartzite.

595. Palæolith, large, axe or cleaver, sharp straight edge, parallel sides, one face pebble-butted ; brownish tinted quartzite.

596. Palæolith, medium, axe or cleaver, one side sharp, one side flat ; brownish tinted quartzite. *In situ* in lateritic gravel four feet below the surface.

597. Missing.

598. Boucher, sharp pointed oval, sharp sides and butt ; brownish-yellow tinted quartzite.

599. Palæolith, wedge or cleaver, broad sharp edge, thick butt ; brownish tinted steel-grey quartzite.

600. Palæolith, small, parallel sides ; tinted reddish-grey quartzite.

601. Boucher, small, elongated, oval; banded reddish quartzite.

602. Boucher, very large, elongated, pebble butt, tinted grey quartzite. Pl. II, Fig. 9 and 9a.

603. Boucher, ovoid, amande, sharp edge all round; weathered quartzite.

604. Boucher, large, same type as 602, elongated, thin point, pebble-butted but part removed by joint plane; dark purplish-grey quartzite.

605. Boucher, small, broken; brownish quartzite.

606. Boucher, ovoid, very broad point; mottled, weathered brownish-grey quartzite.

607. Boucher, ovoid, thin, broken; light brownish tinted grey quartzite.

608. Scraper, medium; weathered greyish quartzite.

609. Boucher, ovoid, amande, thin; weathered quartzite.

610. Boucher, roughly oval, broad point, small pebble butt; tinted quartzite.

611. Boucher, small, broken, part of pebble face visible, weathered; tinted quartzite.

612. Palæolith, large, discoid, both faces convex, sharp edge; greenish-grey quartzite with red coating.

613. Boucher, medium, elongated, rude; dark grey quartzite.

614. Scraper, large, formed from flake; brownish quartzite.

615. Boucher, large, elongated, thickened in middle; tinted quartzite.

616. Scraper or knife, sharp edge, crescentic; tinted quartzite. Pl. III, Fig. 6.

617. Palæolith, small, discoid, both faces convex; mottled greyish-brown quartzite.

618. Boucher, elongated, thin point, pebble butt; weathered and tinted quartzite. Pl. II, Fig. 2.

619. Boucher, ovoid, rude, one face flat; weathered quartzite.

620. Palæolith, knife ?, small sharp edges; tinted quartzite.

621. Boucher ?, broken, one face shows surface of pebble; tinted quartzite.

622. Palæolith, large, discoid, flattish faces; tinted quartzite.

623. Palæolith, triangular, medium, thin sharp edges; mottled greyish-brown quartzite.

624. Boucher, large, elongated oval, broad point, broken butt; reddish-brown quartzite.

625. Palæolith, large, axe or chopper, oblique edge, parallel sides; tinted quartzite.

626. Boucher, small, pointed oval; reddish-brown quartzite.

627. Boucher, medium, pointed oval, rude, one face flattish; dark weathered quartzite.

628. Boucher, medium, pointed oval; mottled light brown quartzite.

629. Palæolith, ovoid, small, sharp edges, thick in centre; dark hematite quartzite.

630. Boucher, pointed oval, small pebble butt; tinted quartzite.

631. Boucher, broad pointed oval, small pebble butt; tinted quartzite. Pl. II, Fig. 7.

632. Scraper or saw, very large, one face flat; weathered ferruginous quartzite.

633. Palæolith, large, broken, wedge-like form; tinted quartzite.

634. Palæolith, large, cleaver, parallel sides, thick butt; weathered quartzite.

635. Palæolith, large, ovoid, broken, unfinished boucher?, one face flat; tinted quartzite.

636. Palæolith, axe or cleaver?, sharp sides and edge; tinted quartzite.

637. Boucher?, ovoid, amande; worn and weathered ferruginous quartzite.

638. Palæolith, small, discoid, sharp edge all round; dirty greyish-brown quartzite. Pl. II, Fig. 6.

639. Palæolith, small, discoid, sharp edge all round, one face flat; dark steel-grey quartzite.

640. Boucher, ovoid, broad point; mottled reddish-brown quartzite.

641. Boucher, large, elongated oval, broken; fine dark grey quartzite.

642. Palæolith, large, thin, one face flat, pear-shaped but point replaced by oblique edge; coarse reddish quartzite.

643. Palæolith, large, thin, one face flat, elongated oval; dirty purplish red quartzite.

644. Boucher, medium, pointed oval, one face flat, thick butt; tinted banded quartzite.

645. Palæolith, medium, chopper?, one face flat; pinkish quartzite.

646. Boucher, medium, pointed oval, pebble butt; weathered tinted quartzite.

647. Boucher ?, small; white quartzite stained yellow.

648. Boucher, pointed oval, very thick pebble butt; weathered and broken reddish quartzite.

649. Boucher, small, thick pebble butt, ovoid; mottled reddish and grey quartzite.

650. Boucher, very large, broad pointed oval, pebble-butted on one face; tinted and weathered grey quartzite.

651. Scraper, medium, crescentic edge; hematite quartzite.

652. Boucher, medium, shapely, thin pointed oval, thick butt; greenish-grey quartzite.

653. Boucher, large, broad pointed oval, sharp sides, thick butt, part missing; dark laminated fine-grained quartzite.

654. Scraper, medium, crescentic edge, broken; tinted waxy quartzite.

655. Scraper, rude, straight edge; tinted quartzite.

656. Boucher, small, pear-shaped, small broken pebble butt; light brown quartzite.

657. Palæolith, medium, discoid, sharp edge all round, one face flattish; brown tinted quartzite.

658. Boucher, large, broken; coarse reddish-brown quartzite.

659. Palæolith, medium, ovoid, chipped edge, one face flat; reddish quartzite.

660. Palæolith, large, cleaver, crescentic edge; brown quartzite.

661. Palæolith, large, axe or cleaver, straight edge, rounded butt; coarse brownish quartzite. Pl. II, Figs. 1 and 1*a*.

662. Scraper, large, crescentic edge; dark banded quartzite.

663. Palæolith, large, axe or wedge, crescentic edge, broken butt; reddish-brown quartzite.

664. Boucher, large, pointed oval, thick; reddish-brown quartzite.

665. Boucher, large, pointed oval, one face pebble-butted; brown tinted quartzite.

666. Boucher, ovoid, amande, thick butt, oblique truncated point; bluish-grey quartzite.

667. Boucher, ovoid, large, oblique truncated point; weathered quartzite.

668. Palæolith, large, axe or wedge, thin; light brownish-red quartzite.

669. Boucher, small, elongated oval, one face flat; brownish quartzite.

670. Boucher? small, unfinished; brownish tinted quartzite.

671. Boucher, small, pear-shaped, one face flattish, other partly pebble-butted; dark quartzite. Singilput, from surface. R.B.F.

717. Palæolith, small, oblong, chipped all round, one face flat; dark brown quartzite. From surface, Ontoor Nala, Chingleput district? R.B.F.

718. Boucher, small, pointed oval, partly pebble-butted; dark quartzite. From surface, Sripermatur, Chingleput district. R.B.F.

719. Palæolith, large, discoid, sharp edge; brown tinted quartzite. From surface, Attrampakkam Nala.

720. Palæolith, flake knife?, elongated; brown tinted quartzite. Turned out of ballast pit in laterite gravel, at Pallaveram, Madras. The first chipped implement discovered in India. Figured in Plate I of Foote's paper "On the Occurrence of Stone Implements in Lateritic formation in various parts of the Madras and North Arcot district" *Madras Journal of Literature and Science* 1864. Pl. III, Fig. 4.

721. Palæolith, flake knife, elongated; brown tinted banded quartzite. On surface, Attrampakkam Nala. See Plates 2 and 2*a* in the above papers.

722. Boucher, medium, pear-shaped, shapely, small pebble butt; tinted steel-grey quartzite. On surface, same locality. See Plates 3 and 3*a* of Foote's paper. Pl. III, Fig. 2.

723. Boucher, large, elongated, sharp pointed oval; brown tinted quartzite. *In situ* in laterite. Implement a good deal waterworn. Plates 6 and 6*a* of Foote's paper. Same locality. Pl. III, Fig. 8.

724. Boucher, large, elongated, oblique truncated oval; banded brown quartzite. On surface. Plates 7 and 7*a* of Foote's paper. Pl. II, Figs. 8 and 8*a*.

725. Boucher, medium, ovoid, sharp edges; brownish tinted quartzite. On surface. Plates 9 and 9*a* of Foote's paper. Same locality.

726. Boucher, medium, ovoid, broken; brown tinted quartzite. On surface. Plates 10 and 10*a* of Foote's paper. Palaveram, Madras district.

727. Missing.

743. Boucher, large, pointed, pebble-butted; mottled brownish quartzite. From the surface, Attrampakkam Nala. The following

specimens up to No. 776 are probably from same locality. They all appear to have been collected by Foote and to have been acquired by the Museum in 1882. They are all from the surface, unless otherwise stated.

744. Boucher, large, pointed, pebble-butted; reddish-brown quartzite.

745. Boucher, large, sharp pointed, rude, unfinished; dirty grey quartzite.

746. Boucher, small, pear-shaped, thin; brown tinted quartzite.

747. Boucher, small, ovoid, broken butt; banded grey quartzite.

748. Missing.

749. Scraper-flake, medium; reddish-brown quartzite.

750. Palæolith, large, ovoid, one face flat, pebble-butted, edge broken; banded light brown quartzite.

751. Boucher, pointed, oval, medium, bleached; greyish-brown quartzite.

752. Boucher, broken, thick butt; dark steel-grey quartzite.

753. Palæolith, axe, medium, oblique edge, rounded butt; dirty grey quartzite.

754. Boucher, large, broad point, pebble-butted; tinted light brown quartzite.

755. Palæolith, axe, straight edge, roughly parallel sides; coarse reddish-brown quartzite.

756. Boucher, long, sharp thin point, pebble-butted; brownish tinted grey quartzite.

757. Palæolith, medium, thick, edged all round; dirty greenish-grey quartzite.

758. Palæolith, small, sling stone; bleached reddish-grey quartzite.

759. Scraper, large, semicircular, chipped edge; stained reddish-brown quartzite.

760. Boucher, large, pear-shaped, point broken; dark quartzite.

761. Boucher, large, broad pointed oval, small pebble butt; coarse banded quartzite.

762. Palæolith, small, thick, sling stone; grey quartzite stained red.

763. Boucher ?, small oval; red hematite quartzite.

764. Boucher ?, large, straight edge, slightly constricted sides, rounded butt; beautiful specimen; brown tinted quartzite. On surface,

on laterite conglomerate. Figured in the *"Proceedings of the Prehistoric Congress at Norwich 1868."* Pl. II, Figs. 4 and 4*a*.

765. Boucher, large, oval, one face flat, sharp edge; coarse reddish quartzite pebble.

766. Palæolith, large, ovoid, chipped; greyish-white quartzite pebble.

767. Palæolith, large, rude, flaked; brownish-grey quartzite.

768. Boucher, large, oval, sharp edges; brown tinted quartzite.

769. Boucher, medium, long oval; stained white quartzite.

770. Scraper, large, sharp crescentic edge; light red translucent quartzite.

771. Scraper, large, sharp crescentic edge; stained quartzite

772. Scraper-flake, large; brownish tinted quartzite.

773. Boucher, pear-shaped, broken point, small pebble butt; mottled grey and brownish quartzite.

774. Palæolith, small, discoid, very weathered; stained ferruginous quartzite

775. Scraper, small, long crescentic edge; stained ferruginous quartzite.

776. Palæolith, large, wedge, worked sides and edge, thick butt; dirty grey quartzite.

5844. Boucher, medium, pear-shaped, weathered reddish-brown quartzite. This and the next two specimens are from Trivellore, Chingleput district, and were presented by Sir H. Seton-Karr in 1903.

5845. Palæolith, ovoid, one face flat, edge all round; tinted yellowish-brown quartzite.

5846 Boucher, small, elongated, pebble butt; tinted quartzite.

UNKNOWN LOCALITIES IN MADRAS.

The following specimens are from unknown localities in Madras.

1754. Boucher, large, straight edge, rounded butt; brown tinted quartzite.

1755. Boucher, pear-shaped, worked all round, shapely; light-brown tinted quartzite.

1756. Boucher, large, irregular oval, one face pebble-butted; brownish quartzite.

1757. Missing.

1758. Palæolith, medium, broad axe type; coarse reddish-brown quartzite.

1759. Boucher, broad pointed oval, edged all round; tinted light sandstone.

1760. Palæolith, rectangular, axe-like form; coarse reddish-brown quartzite.

1761. Scraper, medium, edged all round; greyish tinted quartzite.

1031. Boucher, small, rough, broad pointed oval; tinted quartzite. Nyamti, Honali taluq.

1032. Palæolith, axe or cleaver, edged all round; dark ferruginous quartzite. 2 miles north of Narrapilly from high level gravels. C. A. Oldham.

1033. Scraper, large, crescentic; reddish quartzite. Found on surface 1¼ miles east of Nuddumdodi. C.A.O.

1034. Boucher, small, irregular oval; tinted reddish quartzite. S. of Atmakur, 4 miles south-west of Tandamury.

1035. Palæolith, medium, cleaver, straight edge; reddish quartzite. S. of Durnpetta, Dharmavaram taluq. C.A.O.

345. Boucher, small, ovoid; tinted coarse reddish-brown quartzite. Luckpa. R.B.F.

SOUTHERN MAHRATTA COUNTRY.

The specimens from the Dharwar and Bijapur districts are conveniently described under the heading Southern Mahratta country, a term already used by R. Bruce Foote when writing on the geology of these and adjoining areas. All the specimens were collected by Foote who has given the following account of the localities whence they were obtained :—

"Two beds of kankar-cemented shingle, one in the Malprabha, and the other in its tributary, the Bennihalla, yielded a large number of fine, well-shaped, and mostly large-sized chipped quartzite implements, some of which were very firmly cemented in the mass and required considerable labour for their extraction. In the former bed, at Kaira on the left bank of the Malprabha, five miles south by east of the town of Badami, the gravel bed is seen in the bank of the river at ordinary flood level; in the second case, the gravel occurs in the middle of the stream bed, three miles south of the junction of the Bennihalla and the Malprabha. A great bed

of gravelly kankar, with quartzite shingle and a few large chipped implements of good quality, occurs between Hire and Chik Mulingi (Heera and Chik Moolingee), about twenty miles above Kaira.

This part of the country seems to have been a centre for the implement makers, for implements of all sorts—axes, spearheads, and scrapers in great variety—occur scattered in large numbers over the surrounding country, wherever the red lateritic sub-soil is exposed, *e.g.*, north-west of Kaira, and between Somankop and Chamkatti (Chumunkuttee) north of the basement quartzite ridge. The implements found in the river beds must have been carried a very little distance by water action, for they show very little or no signs of attrition.

The lateritic soil just mentioned does not belong to the alluvium, but is older and most likely in part of subaerial and in part of lacustrine origin.

Gravel beds of undetermined origin, but probably lacustrine, or fluviatile, were observed at two places—one near Kaladgi, at a place called Tolanmatti, thirteen miles north-east of that station, the other along the foot of the Katharigarh (Kuttargurh) hills, near the village of Tolur, about eight miles north-west of Manoli.

Both of these gravel beds consist mainly of quartzite pebbles, and both yielded chipped stone implements, those in the Tolanmatti gravel occurring *in situ*, imbedded about 3 feet below the present surface of the ground.

Of the gravel bed at Tolur, which is singularly coarse, no section was seen, and the implements collected were found on the surface. All were rather water-worn.

In a small patch of kankar-cemented gravel occurring on the banks of the Yelhatti nullah, nine miles west by south of Jamkhandi, an upper molar tooth of a large bovine animal was found. The position of this patch of gravel points to its having been formed by the nullah which now cuts through it. The tooth in question is thoroughly mineralised and partly encrused with hard kankar......"

A little to the west of Yeddihalli, and also to the east of Arukeri, several well-shaped chipped stone implements were found lying on the surface of the conglomerate from which they had apparently been washed out. The fact of these implements being made of limestone is interesting, this being the first case in Southern India in which chipped implements have been discovered which were not manufactured from quartzite pebbles. No real quartzite occurs immediately in that neighbourhood, and the hard, compact, and rather siliceous limestone with a strongly conchoidal fracture, was a stone not altogether ill fitted to replace the harder quartzite, in the absence

of a better substitute. "The Geological Features of the Southern Mahratta Country and Adjacent Districts," by R. Bruce Foote. *Mem. Geol. Sur. Ind.*, Vol. XII, pages 241-243 and 247.

Most of the specimens described below were exhibited by Mr. Foote at the International Exhibition in Vienna in 1873, and were afterwards presented to the Geological Survey of India and later on transferred to the Indian Museum. In 1887, Mr. Foote, who at that time was acting as Director of the Geological Survey of India, acquired some of the finer examples by exchange, and they now form part of his collection in the Madras Museum.

193. Scraper, medium, shapely; fine brownish-grey quartzite. Dharwar district.

194. Scraper-flake, medium; dark grey quartzite. Dharwar district. R. B. F.

201. Scraper, medium, crescentic edge; mottled pink quartzite. Moondurgi Hill, Dharwar district. R. B. F.

202. Palæolith, small, broken; greenish-grey quartzite. Hoolkoond. R. B. F.

203. Palæolith, medium, discoid, sharp edge; mottled reddish-brown quartzite. Tolanmatti, Bijapur district. R. B. F. Pl. III, Fig. 7.

204. Palæolith, axe or cleaver, medium, straight sharp edge, parallel sides; brown tinted quartzite. Seeroor, Bijapur district. Pl. III, Fig. 1.

205. Boucher, large, very elongated, curved, broad point, rounded butt; weathered brownish quartzite. Kaladgi district?

206. Scraper, small; vein quartz. Bijapur district. R. B. F.

207. Palæolith, small; chipped vein quartz. Kerkalmatti, Bijapur district.

208. Boucher, oval, amande; dark steel-grey quartzite. Kaira, Badami taluq, Bijapur district. (Specimens 209-247 are from the same locality; gravels in the bank and bed of the Malprabha river).

209. Palæolith, small, axe or cleaver, oblique edge; brown tinted quartzite.

210. Boucher, large, elongated, curved, sharp point, pebble butt; weathered quartzite.

211. Palæolith, large, crescentic edge; brown tinted quartzite.

212. Palæolith, medium, straight edge; brown tinted banded quartzite.

213. Boucher, medium, elongated, sharp thin point, small thick pebble butt; light brown tinted quartzite.

214. Boucher, large, elongated, thin point, weathered; greyish-brown tinted quartzite. Pl. III, Fig. 11.

215. Boucher, large, elongated, broken point, edged butt; fine-grained pinkish quartzite.

216. Boucher, large, pointed oval, weathered; greyish banded quartzite.

217. Boucher, large, butt and point missing, sharp sides; brown tinted quartzite.

218. Boucher, large, oval, butt end slightly thicker; brown tinted quartzite.

219. Boucher, large, oval, thin, point missing; greyish quartzite.

220. Boucher, medium, oval, one end slightly broken, thin; brownish tinted grey quartzite.

221. Missing.

222. Palæolith, discoid, large, sharp edge; reddish quartzite. Pl. III, Fig. 14

223. Palæolith, discoid, large; greyish quartzite.

224. Palæolith, discoid, large, sharp edge; greyish-white quartzite.

225. Palæolith, discoid, large; greyish banded quartzite.

226. Palæolith, very large, axe or cleaver, straight edge and butt; brown tinted quartzite.

227. Palæolith, medium, axe or cleaver, one face flat, straight edge, sharp sides; greyish quartzite.

228. Palæolith, large, axe or cleaver, rectangular; reddish quartzite.

229. Palæolith, small, axe or cleaver; speckled brownish-red quartzite.

230. Palæolith, large, axe or cleaver; mottled brownish and grey quartzite.

231. Palæolith, medium, axe or cleaver, rude; coarse dirty grey quartzite.

232. Palæolith, medium, axe or cleaver?; brownish tinted grey quartzite.

233. Palæolith, large, axe or cleaver, straight edge; tinted quartzite.

234. Palæolith, small, axe or cleaver, oblique edge, straight sharp sides, sharp rounded butt; dirty grey quartzite.

235. Palæolith, medium, adze edge; sharp sides; tinted quartzite.

236. Palæolith, medium, oblique edge; stained coarse quartzite.

237. Boucher, broad pointed oval, one face flat; brownish tinted banded quartzite.

238. Boucher, small, oval, one face flat; reddish-brown quartzite.

239. Boucher, small, pointed, small pebble butt; coarse grey quartzite.

240. Boucher, small, ovoid, one face flat; coarse mottled grey quartzite.

241. Boucher, small, pointed, broken butt; tinted light brown quartzite.

242. Boucher, small, broad pointed; light reddish-grey quartzite.

243 Boucher, small, truncated oval; coarse quartzite.

244. Palæolith, medium, discoid, sharp edge; tinted greyish-white quartzite.

245. Palæolith, small, discoid, sharp edge; tinted quartzite. Pl. III, Fig. 13.

246. Palæolith, small, rectangular; reddish-brown quartzite.

247. Boucher, small, oval; translucent quartzite.

248. Palæolith, scraper?, long, crescentic edge, pebble butt; banded reddish-grey quartzite. From kankar cemented gravel in the Bennihalla nullah, 3 miles south of its junction with the Malprabha river, Dharwar district. Specimens 250-275 are from the same locality as 248.

250. Boucher, large, elongated, sharp pointed; banded reddish quartzite.

251. Palæolith, large, axe, broken edge, thick flat sides, rude pointed butt; grey quartzite.

252. Boucher, large, elongated oval, shapely; pinkish-grey quartzite.

253. Boucher, large; elongated oval; banded grey quartzite.

254. Boucher, large, elongated oval, pebble-butted; grey quartzite.

255 Palæolith, medium, rounded, thick; coarse pinkish quartzite.

256. Boucher, large, very elongated, sharp pointed; grey quartzite.

257. Missing.

258. Missing.

259. Boucher, small, pear-shaped; dirty grey quartzite.

260. Boucher, very large, pointed oval, thin point; greyish quartzite.

261. Boucher, large, oval, broken along joint plane; coarse quartzite.

262. Boucher, large, sharp pointed, thin butt; light reddish quartzite.

263. Missing.

264. Palæolith, very large, wedge-shaped, sharp edge, thick butt, parallel sides; dirty white quartzite.

265. Palæolith, very large, wedge-shaped, sharp edge, thick, flat side, broken; dirty white banded quartzite.

266. Boucher, medium, truncated oval, rounded butt; greenish-grey quartzite.

267. Boucher, medium, truncated oval, flat; coarse grey quartzite.

268. Boucher, ?, medium, truncated oval, one side has a curious projection, one face is flat; brownish banded quartzite.

269. Palæolith, very large, axe or wedge-like, sharp oblique edge, parallel sides, rounded butt; reddish quartzite. Pl. III, Fig. 9.

270. Palæolith, axe or chopper, oblique edge; grey quartzite.

271. Palæolith, very large, axe or cleaver, oblique edge, partly pebble-faced; reddish-grey quartzite.

272. Palæolith, medium, oblique edge, pebble butt; weathered reddish quartzite.

273. Palæolith, large, enlarged edge, thick constricted sides, one face flat; mottled greyish quartzite.

274. Palæolith, medium, rude, one flat cleavage face; striped red quartzite.

275. Palæolith, small, one face flat, thin edge, parallel sides, thick butt; grey quartzite.

276. Palæolith, medium, ovoid, flattish, sharp edges; grey quartzite. Surface of gravels on bank of Malprabha river, Heera Moolingee.

277. Palæolith, large, ovoid, flattish, sharp edges, broken; purplish quartzite. Surface of gravels on bank of Malprabha river, Chick Moolingee. Specimens 278-281 are from the same locality as 277.

278. Palæolith, small, ovoid, slingstone?; brown tinted quartzite.

279. Palæolith, small, ovoid, slingstone?; brown tinted quartzite.

280. Palæolith, small, scraper?; brown tinted quartzite.

281. Palæolith, small, ovoid, one face flattish; brown tinted quartzite.

282. Palæolith, small, chipped; brown tinted quartzite. Soola.

283. Boucher, small, oval, unfinished; brown tinted quartzite. Ruttee.

284. Palæolith, discoid, one face flat; brown tinted quartzite. Ruttee.

285. Palæolith, discoid, one face flat; brown tinted quartzite. Ruttee.

286. Palæolith, one face flat, one face chipped; tinted quartzite. Somunkop.

287. Palæolith, small, sharp edge; brown tinted quartzite. Soolla, Badami taluq, Bijapur district. Specimens 287-291 are from the same locality and from the surface of a gravel bed on the bank of the Malprabha river.

288. Missing.

289. Missing.

290. Palæolith, small; brown tinted quartzite.

291. Palæolith, small; reddish-brown tinted quartzite.

292. Missing.

293. Palæolith, medium, discoid, sharp edge; tinted quartzite. Chick Nargoond, Dharwar district.

294. Boucher, very elongated, sharp point; reddish-brown tinted quartzite. Tolur, Belgaum district. Pl. III, Figs. 10 and 10*a*.

295. Palæolith, flaked convex faces, crescentic edge; trap. South of Gokak, Belgaum district.

348. Palæolith, large, axe or chopper; coarse brownish quartzite. From gravels in the bank and bed of the Malprabha river, Kaira, Badami taluq, Bijapur district. Specimens 349-379, 381-405 are from the same locality as 348.

349. Boucher, large, rude, pointed oval; reddish quartzite.

350. Boucher, large, ovoid; coarse brownish quartzite.

351. Boucher, medium, pear-shaped, small pebble butt; coarse grey quartzite.

352. Boucher, medium, broad pointed oval, rude; tinted quartzite.

353. Scraper?, large, pecked edge; coarse tinted quartzite.

354. Palæolith, medium, small pebble butt; coarse tinted quartzite.

355. Boucher, large, unchipped, broad point, one face flat; tinted quartzite.

356. Palæolith, small, globose, chipped all round; fine hematite quartzite.

357. Boucher?, medium, small pebble butt; coarse white banded quartzite.

358. Palæolith, large, discoid, one face flat; coarse tinted quartzite.

359. Palæolith, broad cleaver, broken edge; coarse tinted quartzite.

360. Palæolith, cleaver, triangular; banded hematite quartzite.
361. Palæolith, axe or chopper, small straight pebble butt, sharp edge, adherent kankar; coarse light reddish quartzite
362. Boucher, large, ovoid; coarse tinted quartzite.
363. Missing.
364. Boucher, medium, broken, elongated oval, one face flat; coarse quartzite.
365. Scraper, large, elongated; coarse brownish quartzite.
366. Boucher, large, elongated oval, truncated point; reddish quartzite.
367. Missing.
368. Boucher, small, pear-shaped; coarse brownish quartzite.
369. Boucher, medium, ovoid, one face flat; fine reddish quartzite.
370. Boucher, large, pointed oval; coarse tinted quartzite.
371. Boucher, large, elongated oval; coarse brown quartzite.
372. Boucher, small, broken; fine reddish quartzite.
373. Boucher, large, pointed oval, truncated; coarse tinted quartzite.
374. Boucher, small, one face flat; reddish-grey quartzite.
375. Boucher, medium, pear-shaped, pebble butt; banded tinted quartzite.
376. Pallæoith, broken; coarse reddish-grey quartzite.
377. Boucher, thick, ovoid; coarse, banded reddish-brown and black quartzite.
378. Boucher, thick, ovoid; fine brownish quartzite.
379. Boucher medium, ovoid, sharp pointed oval; coarse tinted quartzite.
380. Boucher, sharp pointed oval; very weathered quartzite. From kankar cemented gravel in bed of stream, Bennihalla.
381. Boucher, broad pointed oval; trap ?, weathered.
382. Boucher, sharp pointed oval, sharp sides; fine reddish quartzite.
383. Boucher, large, shapely, elongated, straight edge constricted above, sharp sides, rounded butt; tinted greenish quartzite.
384. Boucher, small, pointed oval; fine reddish-grey tinted quartzite.
385. Boucher, pointed oval, broken, small pebble butt; tinted reddish quartzite.
386. Boucher, small, oval, pebble butt, worked sides; tinted quartzite.
387. Palæolith, hand chopper ?, one face flat; very weathered quartzite.

388. Boucher, small, pear-shaped, pebble butt; tinted quartzite.

389. Boucher, large, pear-shaped, sharp sides and butt; tinted quartzite. Pl. III, Figs. 12 and 12*a*.

390. Missing.

391. Boucher, large pointed oval; brown tinted reddish quartzite.

392. Boucher, large pointed oval; fine reddish quartzite.

393. Boucher, small, pear-shaped (rude), truncated point; brownish quartzite.

394. Boucher, large, shapely, sharp pointed; tinted yellowish-brown quartzite.

395. Boucher, medium, truncated oval, sharp worked edge, brown tinted quartzite.

396. Boucher, small, pear-shaped, one face flat, weathered; brown tinted quartzite.

397. Boucher, medium, broad pointed, rude, adherent kankar; brownish quartzite.

398. Boucher, large, pointed oval, pebble butt, shapely; yellowish-brown fine-grained quartzite. Pl. III, Fig. 5.

399. Boucher, small, truncated oval, one face pebble-butted; grey quartzite.

400. Boucher, very large, sharp pointed oval; reddish quartzite.

401. Boucher, large, elongated truncated oval; reddish quartzite.

402. Boucher, large, pointed oval; very weathered ferruginous quartzite.

403. Boucher, large, thin, elongated oval; greyish quartzite.

404. Boucher, small oval; chocolate quartzite.

405. Scraper ?, large; dark grey quartzite.

542. Boucher, broad, blunt pointed, sharp sides and butt; dark quartzite. On the surface, Jalihal, Dharwar district.

543. Palæolith, axe-like, medium, straight edge, flat sides. Same locality as 542. R. B. F.

552. Palæolith, small, discoid, both sides flat; reddish quartzite. *In situ* near Kaladhi.

694. Palæolith, small; reddish-brown quartzite. On surface, Maski.

697. Palæolith, medium, flat, discoid; reddish tinted quartzite. H.P. Ghat. On surface.

698. Boucher, medium, pointed oval; dark quartzite? On surface, Mundholi.

699. Palæolith, small, axe edge, one face flat, thick sides, rounded butt; coarse reddish-brown quartzite. *In situ* in sandy gravel, Tolanmatti, Bijapur district.

700. Scraper, large, brown tinted quartzite. Seeroor, Bijapur district.

701. Scraper?, large; brown tinted banded quartzite. Seeroor, Bijapur district. On surface of coarse shingle bed.

703 Boucher, small, water-worn; brown tinted quartzite. Surface of gravel, left bank of Malprabha river, Soolha.

704. Palæolith, very small, discoid, rough; brown tinted quartzite. Same locality as 703.

705. Boucher, medium, elongated oval; brown tinted quartzite.

706. Palæolith, medium, discoid, sharp edge; brownish quartzite. On surface, Shinagerri.

707. Scraper?; medium; chocolate quartzite. On surface, Sillikerrie Hill.

708. Boucher, large, broad pointed oval, thin, one face flattish; chocolate quartzite. On surface, north of Shevandy.

709. Boucher, small, very broad, pointed; tinted quartzite. On surface Shinagerri valley.

710. Boucher, small, pear-shaped, sharp edges, broad; tinted quartzite. On surface Mandoor.

711. Quartzite pebble. Not an implement. Tooloor, Belgaum.

712. Palæolith, small, sharp edge, rounded butt; brown tinted quartzite. On the surface of very coarse, high level, shingle bed. Toloor, Belgaum district.

713. Palæolith, chipped quartzite pebble, thin; reddish-brown quartzite. On the surface, Chik Nargund.

714. Boucher, large, pear-shaped, rude, broken point; reddish quartzite. On the surface, H. P. Ghat.

778. Palæolith, medium, discoid, sharp edges; dark steel-grey quartzite. On surface, north of Ghatprabha river, near Gokak, Belgaum district. Specimens 779—782 are from the same locality as 778.

779. Palæolith, medium, discoid, sharp edges; dirty reddish-grey quartzite. Pl. III, Fig. 3.

780. Boucher, medium, ovoid; banded grey quartzite.

781. Boucher, medium, pear-shaped, broken point, small pebble butt; brownish tinted quartzite.

782. Palæolith, chipped flake, rude; tinted quartzite,

783. Palæolith, medium, rude; brown tinted quartzite. On surface of kankarry lateritic gravel, Moolingee. Specimens 784-796 and 798-801 are from the same locality. They were collected by R. Bruce Foote.

784. Scraper, small, weathered; ferruginous quartzite.

785. Boucher, large, broken; mottled pink and brown quartzite.

786. Scraper ?, semicircular edge, thick butt; bleached reddish quartzite.

787. Boucher ?, small, elongated oval, broken point; mottled reddish quartzite.

788. Palæolith, large, discoid, sharp edge; coarse purplish quartzite.

789. Palæolith, small, partly flaked pebble; bleached light brown quartzite.

790. Palæolith, medium, elongated oval, sharp edge; tinted quartzite.

791. Palæolith, broken; brown quartzite.

792. Palæolith, large, discoid, sharp edge; weathered quartzite.

793. Palæolith, small, scraper ?; weathered reddish quartzite.

794. Palæolith, small, discoid, sharp edges; grey quartzite.

795. Boucher, large, oval, sharp edge; grey banded quartzite.

796. Boucher, large, elongated oval, unfinished; steel grey quartzite.

798. Palæolith, medium, truncated oval, flat sides; brown tinted quartzite.

799. Boucher, elongated oval, broken point; reddish-brown tinted quartzite.

800. Missing.

801. Boucher, small, pointed oval, broken butt and point; coarse variegated quartzite.

CENTRAL PROVINCES (NERBUDDA VALLEY).

A single specimen from the Nerbudda Valley (No. 171), furnishes one of the few, but none the less decisive pieces of evidence of human existence in late geological times, cœval with the presence of a vertebrate fauna long extinct. The boucher found by Hackett in the gravels of the Nerbudda

at Bhutra, 8 miles north of Gadawara, Narsinghpur district, is sure proof that in the days when the Hexaprotodon and Tetraprotodon, with numerous other pachyderms, proboscidians, and ruminants, roamed over Central India, man disputed with them for mastery in the primeval world.

The boucher itself is formed of Vindhyan sandstone, such as might be procured at any point along the northern edge of the valley; it is of pointed oval shape, has a very symmetrical outline, and, although rather roughly chipped on the faces, is unquestionably a manufactured article. Mr. Hackett dug it out himself from where he found it lying flat and two-thirds buried, in a steep face of the stiff, reddish, mottled, unstratified clay, about six feet above low water level, and about three feet below the upper surface of the clay, upon which there rested about twenty feet of the gravel with bones. From the edge of the cliff of gravel, there is a steep slope passing up through the ravine ground, so common along the border of the main river channels, to the general level of the plains, at 90 to 100 feet above the level of the Nerbudda. The question of the age of these ossiferous deposits has been mentioned in the introduction. The boucher is figured and described in the *Records of the Geological Survey of India*, Vol. VI, 1873. "Notes on a Celt found by Mr. Hackett in the Ossiferous Deposits of the Narbada Valley (Pliocene of Falconer): on the Age of the deposits, by Mr. H. B. Medlicott; on the associated Shells, by Mr. W. Theobald." See also, *Manual of the Geology of India*, Vol. I, p. 441 and Pl. XXI and Logan, *Old Chipped Stones of India*, p. 30 and Fig. 2.

171. Hackett's Bhutra boucher, described above. Pl. IV, Figs, 6 and 6*a*.

172. Boucher, medium, pear-shaped, truncated point, coarse quartzite.

Found by Hackett on the surface of the Nerbudda gravels. According to Logan, *loc. cit.* p. 30:—"From a remark of Mr. Medlicott, who describes Hackett's discovery, it appears that these implements are common along the northern side of the valley." I do not agree with this interpretation of Medlicott's remark, which appears to me to refer rather to the rock from which the specimens are made than to the implements themselves.

173. Exchanged in 1901.

THE GODAVARI AND ITS TRIBUTARY VALLEYS.

Specimens 1-29 were obtained by W. T. Blanford about 40 miles west of Bhadrachalam (Godavari district), near Paloncha, Warangal division, Hyderabad. They formed part of a find comprising 35 specimens, which were all discovered within a space of 50 yards square, and at least as many more were rejected on account of being badly made. The locality was in

dense jungle, the rock soft sandstone, and the implements, as is usually the case in Southern India, had evidently been chipped from pebbles. Several were formed of white vein quartz, an unusual circumstance. The forms of these implements are those of the kind most frequently found in French and English gravels, and they vary from about 3 to 6 inches in length. That the spot where they were discovered was a place of manufacture is probable, not only from the occurrence of ill formed implements, but also from the abundance of flakes, evidently chipped from the quartzite. (See *Proc. Asiatic Soc. Bengal*, 1871, p. 179.)

1. Boucher, elongated oval, broad ends, trimmed all round; translucent brownish quartzite. Joint plane visible on one face.

2. Boucher, elongated oval, broad ends, similar to 1 but part of edge ends in a joint plane; dirty grey quartzite.

3. Boucher, small, elongated oval, slightly pointed at both ends; faded banded rose quartz.

4. Boucher, small, pointed oval; white translucent vein quartz with reddish cracks.

5. Palæolith, broad axe-like form, roughly rectangular, butt end broken; brownish-grey quartzite.

6. Boucher, medium sized, pointed oval, edged all round; reddish-brown quartzite. Finely worked specimen. Pl. IV, Fig 13.

7. Boucher, small, pointed oval, truncated point; white vein quartz.

8. Boucher, small, pointed oval; cracked white vein quartz, with brown stains along cracks.

9. Boucher, large, truncated oval, truncated point; white translucent vein quartz. Pl. IV, Fig. 4.

10. Boucher, similar to 9, edged all round, oblique truncated point; white quartzite with tinted reddish-grey surface.

11. Boucher, medium-sized, elongated oval, broad ends; white translucent vein quartz.

12. Boucher, small, elongated oval, point broken; dark bluish-grey quartzite.

13. Boucher, small, pointed oval, edged all round; bluish-grey quartzite. A finely worked specimen.

14. Boucher, elongated, pointed oval, thick, edged all round, point broken off; banded dirty white and bluish-grey quartzite.

15. Boucher, medium, pointed oval, edged all round; reddish-grey quartzite. One face discoloured by weathering.

16. Boucher, medium, elongated, butt and point missing; discoloured bluish-grey quartzite.

17. Boucher, medium, irregular oval, point broken; stained bluish-white quartzite.

18. Boucher, medium, elongated oval, oblique, truncated point; bluish-grey quartzite.

19. Palæolith, thin rectangular piece showing three long smooth flakes, serrated edges. One end broken; grey quartzite. Figured in Logan's "*Old Chipped Stones of India,*" page 60. Pl. IV, Fig 2.

20. Boucher, thin, pointed, edged all round, slightly truncated point; white vein quartz with yellowish-brown markings.

21. Boucher, small, pointed oval, edged all round; mottled grey and reddish-grey quartzite.

22. Boucher, small, similar to 21, point truncated; banded grey and reddish-grey quartzite.

23. Boucher, medium-sized, elongated oval, broad point; translucent greyish-white vein quartz.

24. Boucher, medium sized, elongated oval, chipped all round, truncated point; fine reddish-brown quartzite.

25. Boucher, medium, elongated oval, sharp edge all round, thick in centre; brownish-grey quartzite.

26. Boucher, medium, pointed oval, part of one side missing; white translucent vein quartz.

27. Boucher, broad pointed oval, thickened butt, part of one side missing; fine dark-grey quartzite.

28. Boucher, broad pointed oval, sharp edge all round; banded reddish-grey quartzite.

29. Boucher, elongated oval, thickened butt; reddish-grey banded quartzite.

30. Boucher, pointed oval, shapely, cutting edge all round; reddish quartzite. Specimens 30 and 31 were collected by W. T. Blanford, at Maledi, west-north-west of Sironcha; and the former is referred to in *Proc. Asiatic Society, Bengal*, 1867, page 138.

31. Palæolith, small, discoid, unfinished?, light quartzite with reddish tinting.

32. Boucher, large, thick pebble butt, point ovoid and finely worked; dark reddish quartzite. Specimens 32, 33, and 34 are from the

Sirpur area, in the Pranhita valley, Adilabad division, Hyderabad. The former two were collected by W. King and the latter by F. Fedden.

33. Boucher, medium, rude, elongated oval, point wanting; dark reddish-brown ferruginous quartzite. From the fossil wood gravels between Sirpur and Bibra.

34. Boucher, ovoid form with broad points at both ends, cutting edge all round. Grey fossiliferous flint with reddish surface tinting. Contains fossils of *Melania*, *Paludina* and *Cyprinoides*; from the plain on the north side of Jangoan, Sirpur taluq.

55. An agate chip $2\frac{1}{2}$ inches long and $\frac{7}{12}$th inches wide, rudely triangular in section, one side being flat, while between the two edges it rises on the other side into a ridge. Pl. IV, Fig. 3. The discovery of this implement by A. B. Wynne in 1865, *in situ* in the bone-bearing beds of the upper Godavari valley, excited considerable interest at the time. It was found just below the village of Mungi near Paithan (Hyderabad), on the road between Ahmednagar and Jalna. The river cliff has here a height of about 50 feet, and about 20 feet above its base the specimen was found imbedded in uncompacted, sub-calcareous conglomerate or concrete, gravelly, and containing shells similar to those now living in the neighbourhood. Bones of mammalia have been found in these gravels including *Elephas nomadicus*, *Bos sp.* and several portions of smaller bones and teeth, both of Carnivores and Ruminants. It appears probable that the fauna is similar to that of the Nerbudda valley described by Falconer and Lydekker. For accounts of this find see "Remains of Prehistoric Man in Central India" by A. B. Wynne, *The Geological Magazine*, 1886, pages 283-284 and a further paper entitled, "On the Agate-flake found by Mr. Wynne in the Pliocene (?) Deposits of the Upper Godavery" by T. Oldham, *Rec., Geo. Surv. Ind.* Vol. 1, 1868, pp. 65-69. (This paper contains figures of the flake.) See also, *Proc. Asiatic Society, Bengal*, 1865, p. 207, *and Manual of the Geology of India* by Medlicott and Blanford, p.p. 389 and 441. Pl. XXI, Fig. 2.

35. Boucher, medium elongated oval, point wanting; hard greyish limestone with a brownish-yellow surface tinting. Locality given as Edlabad, ? Adilabad. (See *Proc. Asiatic Soc. Bengal*, 1867, p. 138). Specimens 35—42A. are all from the Penganga

or Wardha valleys in south-east Berar, and like most of the others from the same regio ns were presented to the Indian Museum by the Geological Survey of India.

36. Scraper ? medium brownish—red intertrappean flint. Khair, Wun district, Berar.

37. Boucher, small, shapely, broad pointed oval, reddish quartzite.

38. Scraper ?, small, thin, broken, stained yellowish-brown. Intertrappean flint.

39. Boucher, large, elongated oval, point missing, butt partly formed from joint plane; ? dark quartzite.

40. Palæolith, small, broad pointed oval, unfinished ; translucent mottled greyish Intertrappean flint.

41. Palæolith, small ; formed from a piece of Intertrappean flint flaked and worked at the edges.

42. Scraper, large ; reddish-brown Intertrappean flint. Parsora, Bori Pargana, South-East Berar. Pl. IV, Fig. 9.

42b. Palæolith, small, oval, unfinished, broad point; Intertrappean flint, Dhoki, Bori Pergana, South-East Berar.

43. Boucher, large, pointed oval, pebble butt; hard reddish-grey quartzite, stained on surface. A large number found on surface. Specimens 43 was collected by T. W. H. Hughes in the Chanda district, while specimen 44 was obtained by the same geologist from Chinnur, Adilabad division, Hyderabad.

44. Boucher, medium, broad pointed oval, chipped all round; hard greyish-brown quartzite.

45. Boucher, medium, broad ended oval, ? mottled reddish and dark grey Intertrappean flint. Between Sankaram and Kotapali north of Chinur, Hyderabad.

THE CENTRAL PROVINCES AND CENTRAL INDIA.

(SAUGOR, DAMOH, BUNDELKHAND AND REWAH.)

Most of the palæoliths in the collection of the Indian Museum, from Saugor, Damoh and Bundelkhand, were collected in 1866 by W. L. Wilson, of the Geological Survey of India. From a note read before the Asiatic Society of Bengal in 1867, we learn that they were found scattered generally over the trap area, forming the southern boundary of the district

of Saugor, and the northern to the Nerbudda valley. They always occurred in the surface soil, mostly black clay, called cotton soil; but in all cases the underlying trap rocks protruded in lumpy masses through the soil, in which the chipped specimens were found. On the trap forming a large flat, and the summit of the scarp, two miles east of where the road from Narsinghpur to Saugor crosses it, several specimens were found scattered about. Several more were picked up 11 miles north again, near Moar village, south of Deori. Others were met with on the trap along the edge of the main ranges of hills, close to and north of Deori. Some three dozen specimens were found along the north side of the Sookcher nullah, north and westwards of Deori and in the centre of the trap area four specimens were collected in surface soil, on trap. The Duhar nullah, which crosses the Saugor and Deori road midway between the two places, is bounded on the east by a high plateau, on which several specimens were found. In the Singrampoor valley, between Jubbulpore and Damoh, seven or eight specimens were discovered on the surface of the ground. On the plateau to the south, on which Killoomer hill is situated, some 600 feet above the valley, six or seven were found. See *Proc., Asiatic Soc., Bengal*, 1867, pages 142-143.

46. Boucher, small, broad oval; dark reddish quartzite. Tiki, South Rewah. On Maleri Clays. T. W. H. Hughes.

89. Boucher, small, elongated oval, truncated point; dark reddish Vindhyan sandstone. Kedlaree, south of Saugor District.

90. Boucher, medium, one side flat; reddish Vindhyan sandstone. Arsee.

91. Boucher, medium, rough, truncated oval; dark reddish Vindhyan sandstone. One mile north of Deori, Saugor district.

92. Palæolith, small, sub-rectangular; dark reddish Vindhyan sandstone. Burdhana, Saugor district.

93. Boucher?, oblique truncated oval, dark reddish Vindhyan sandstone. Burdhana, Saugor district.

94. Scraper, small; formed from pebble flake; dark reddish Vindhyan sandstone. Sigrampur, between Damoh and Jubbulpore.

95. Palæolith, small, roughly triangular in outline; dark reddish Vindhyan sandstone. North of Deori, Saugor district.

96. Palæolith, medium, roughly triangular in outline; dark reddish Vindhyan sandstone. Deori, Saugor district.

97. Palæolith, small, straight edge, chipped sides; dark reddish Vindhyan sandstone. Deori, Saugor district.

98. Scraper ?, large ; reddish Vindhyan sandstone. Deori, Saugor district.

99. Palæolith, small, irregular ; dark reddish Vindhyan sandstone. Deori, Saugor district.

100. Scraper ?, large ; tinted Intertrappean flint. Central India.

101. Boucher ?, medium, ovoid ; tinted Intertrappean flint. Bundelkhand.

102. Palæolith, medium, long oval, flat surface ; dark tinted Vindhyan sandstone. Bundelkhand.

103. Palæolith, axe, large, parallel sides, straight edge ; hard tinted Vindhyan sandstone. Pl. IV, Fig. 8.

104. Scraper, large, thin ; weathered Intertrappean flint. Bundelkhand.

105. Boucher, oval, "amande," thin ; tinted Vindhyan sandstone. Bundelkhand. Pl. IV, Fig 5.

106. Palæolith, large, ovoid, flaked edges ; brownish tinted grey Vindhyan sandstone.

107. Palæolith, medium, thick ; chipped piece of dark reddish-brown Vindhyan sandstone. Bundelkhand.

108. Boucher, small, pointed oval ; pebble-faced ; brown Vindhyan sandstone. Bundelkhand.

109. Boucher, small, pointed oval ; tinted Vindhyan sandstone. Bundelkhand.

110. Palæolith, medium, axe, crescentic edge, parallel sides ; reddish Vindhyan sandstone. Bundelkhand.

111. Boucher, weathered, perhaps not an implement ; Vindhyan sandstone. Bundelkhand.

112. Scraper, large, crescentic edge, thin, one face flat ; brown tinted Vindhyan sandstone. Sigrampur, Damoh district.

113. Palæolith, thick, chipped, pointed ; dark Vindhyan sandstone. Saugor district.

114. Palæolith, thick, chipped pebble, sharp edge, rounded butt ; purplish Vindhyan sandstone. Burkhura, Saugor district.

115. Boucher, pear-shaped, pointed ; fine-grained dark Vindhyan sandstone. Burdhana, Saugor district. Pl. IV, Fig. 7.

116. Scraper, large, tinted Intertrappean flint. Burdhana, Saugor district.

117. Palæolith, broken boucher ? ; hard reddish Vindhyan sandstone. Burdhana, Saugor district.

118. Palæolith, very weathered boucher ? ; tinted Vindhyan sandstone. Bundelkhand.

119. Axe, medium, thick, straight edge and butt, flattish pecked sides ; trap. Perhaps Neolithic. On surface, Bundelkhand ?

120. Boucher, medium, oval ; tinted Vindhyan sandstone. Bundelkhand.

121. Boucher, small truncated oval ; part of pebble face remaining ; tinted quartzite. Bundelkhand. Pl. IV, Fig. 10.

122. Palæolith, medium, axe, shapely, parallel pecked sides and edge ; dark reddish Vindhyan sandstone. Bundelkhand. Pl. IV, Fig. 11.

123. Palæolith, medium, discoid, thick, one face flat ; grey quartzite. Bundelkhand.

124. Piece of trap, chipped and pecked. Near Serinagar, north of Nowgong, Bundelkhand. This and the following specimens up to 149 are perhaps of neolithic age. Pl. IV, Fig. 12.

125. Piece of trap, pecked at edges. Same locality as 124.

126. Piece of trap, probably not worked. Same locality as 124.

127. Trap flake, chipped and pecked. Same locality as 124.

128. Trap flake, chipped. Same locality as 124.

129. Piece of trap, chipped. Bundelkhand.

130. Piece of trap, chipped and pecked, pointed. Bundelkhand.

131. Piece of trap, chipped and pecked. Bundelkhand.

132. Scraper, small, shapely, cresentic ; brownish quartzite.

133. Trap flake, chipped and worked at edges. Bundelkhand.

134. Trap flake, scraper ?, weathered. Bundelkhand.

135. Piece of trap, large, one face flat, chipped and worked at edges.

136. Piece of trap, chipped and worked at edges ; scraper ?. Bundelkhand.

137. Piece of trap, chipped and pecked edges ; pointed. Bundelkhand.

138. Piece of trap, chipped and pecked at edges. Bundelkhand.

139. Piece of trap, chipped and flaked on one edge. Bundelkhand.

140. Trap flake, chipped and pecked. Bundelkhand.

141. Trap flake, chipped and pecked. Bundelkhand.

142. Trap flake, chipped and pecked; thick. Bundelkhand.

143. Piece of trap, chipped and pecked. Bundelkhand.

144. Trap flake, chipped and pecked, scraper ?. Bundelkhand.

145. Piece of quartzite, probably not an implement. Bundelkhand.

146. Trap flake, chipped. Bundelkhand.

147. Piece of trap, chipped and flaked on one side. Bundelkhand.

148. Piece of trap, chipped and flaked on both sides. Bundelkhand.

149. Trap flake, chipped and pecked. Bundelkhand.

150. Boucher, medium, oval, sharp edges; coarse grit. Bundelkhand.

157. Palæolith, medium, axe-type, sharp edges; banded quartzite. Damoh ?.

158. Boucher, medium, elongated oval; hard reddish sandstone. Damoh.

170. Boucher, medium, pointed, bent, sharp edges; grey quartzite. Neemuch, Central India.

3128. Boucher, medium, pointed oval, sharp edge all round; brown quartzite. Dhamoni, Lalitpur District. P. C. Mukerji.

RAJPUTANA.

The Palæolithic specimens from Rajputana in the collection, like most of those from other localities, originally belonged to the Geological Survey of India. They were all collected from the surface by C. A. Hackett of that department, probably in the seventies, but beyond the brief entries in the register of the Archæological department, I have been unable to obtain any further information regarding them.

161. Boucher, large, ovoid with prolonged truncated point; grey quartzite, Jaipur. Pl. V, Fig. 7.

162. Palæolith, axe-like, sharp sides, broken edge; mottled reddish and brownish quartzite. Jaipur.

163. Boucher, large, thick, ovoid, roughly flaked, sharp edges; tinted grey quartzite. Same locality as 162. Pl. V, Fig. 6.

164. Missing.

165. Boucher, small, ovoid, sharp edge; coarse brownish quartzite. Bundi.

166. Boucher, small, ovoid, broad point, one face flattish; bluish quartzite. Bundi. Pl. V, Fig. 3.

167. Boucher, large, oval, sharp edges; reddish-brown sandstone. Indargarh.

168. Boucher, medium, pointed oval, sides and faces partly formed by joint planes; dirty white quartzite. Indargarh.

169. Missing.

170. Missing.

BENGAL, BIHAR AND ORISSA.

Palæolithic implements are rarely found in Bengal or Bihar and Orissa, and the Museum only possesses three specimens from either of the two provinces. In 1865 V. Ball discovered a small boucher, fashioned from a pebble of greenish quartzite, on the surface of the ground near the village of Kunkune, 11 miles south-west of Govindpur on the Grand Trunk road, in association with a spread of pebbles derived from the conglomerates of the Lower Damudar group of the Gondwana system. About the same time Hughes obtained a similar specimen made from micaceous quartzite on the Bokharo coalfield. (V. Ball, "Stone Implements found in Bengal." *Proc. Asiatic Soc.* 1865, pp. 127-128).

In 1867, Ball recorded a single addition to the scanty collection of stone implements which have been found in Bengal. This is a symmetrical boucher made from the same material, though of finer workmanship than the others. He remarked, "The chief interest attaching to this discovery is, that the locality is the most eastern in India, in which any traces of the ancient races who manufactured these implements have been found; no sign of anything of the kind has been met with in the alluvium which stretches for over a hundred miles further to the west. In Burma and Assam, it is true, implements have been found, but they are of a very different type, and probably of a much more recent age". To-day we know that the Assamese and Burmese implements are very much later than the chipped quartzites, but no further discoveries of the older forms have as yet been made. (V. Ball, *Proc., Asiatic Soc.*, p. 143, 1867). The Raniganj find referred to by Logan (*Loc. cit.* p. 33) is incorrect, as the implement in question is a polished Neolithic celt.

40. Boucher, small broad pointed oval; quartzite. Jheria coalfield, Bihar. See paper by V. Ball quoted above. Figured in Pl. XIV in the *Proc., Royal Irish Acad., Second Series*, Vol. I, 1879, as an illustration to a paper entitled, "On the Forms and Geographical Distribution of Ancient Stone Implements in India," by Valentine Ball. Pl. V, Fig. 2.

Only four specimens of Palæolithic implements are recorded from Orissa, so far as I am aware, and two of these now form part of our collection. They are all roughly chipped quartzite tools similar to those which have been obtained so abundantly in certain districts of the Madras Presidency, and in smaller numbers in the Central Provinces and in other parts of India. These were picked up on the surface by Valentine Ball at different localities in Denkenal (Dhenkenal), Ungul (Angul), Talchir and Sambalpur. See, Valentine Ball, " On Stone Implements from Orissa ". *Proc*, *Asiatic Soc. Bengal*, 1876, pp. 122-123. Ball's notes on the finds are given below:—*Denkenal*: The specimen from this locality is very rudely formed and has the point broken off by recent fracture. It was found together with the debris from a laterite conglomerate; and from the fragments of ferruginous matrix still attached to its surface there can, I think, be little doubt that it was at one time imbedded in the laterite. The material is an opaque, slightly granular quartzite. *Angul*: This specimen was found in the bed of a stream near the village of Kaliakota. Its shape, a broad oval, is unusual. The material is a vitreous quartzite. *Talchir*: This specimen was found on the surface near Hurichandpur. It is the best formed of the series The material is a vitreous quartzite not improbably derived from a vein. *Sambalpur*: This specimen was found near Bursapali to the north of the well known village of Kudderbuga. It has a pointed wedge shape. The material is a vitreous quartzite.

In a paper read before the Irish Academy, Ball has pointed out the striking similarity which exists between the Bengal and Orissa forms and those from the Madras Presidency, and his conclusion that a connexion existed between the peoples who manufactured these implements, seems a legitimate one to draw. Not only is there a resemblance in form but also in material, and in some instances at least, in the case of the Bengal specimens, they were picked up at localities far remote from the nearest possible source of origin, thus necessitating some human means of transport. (Ball. *Loc. cit.*, page 394. The Orissa specimens are illustrated on Plate XIV which accompanies this paper.)

53. Boucher, elongated oval, pebble butt, broken point; light tinted quartzite. Dhenkenal. Orissa. V. B.

54. Palæolith, flat, discoid, worked edge; brown tinted quartzite. Angul. Orissa. V.B. Pl. V, Fig. 16.

NEOLITHS.

NORTHERN ARCOT DISTRICT.

Specimens 803—812 are from Tulleh in the Vellore taluq, North Arcot district. They have been mentioned by J. Cockburn, who has also figured three of the examples. (J. Cockburn. "Notes on Stone Implements from the Khasi Hills and the Banda and Vellore Districts." *Journ., Asiatic Soc. Bengal*, 1879, pp. 133-143). Cockburn states that these ten specimens were obtained from a low stone table, under a tamarind tree, near a Malayalam temple, by Mr. F. W. Tucker. The Vellore celts closely resemble the long narrow types from the Banda district, and from the red staining on their surfaces it has been supposed that they are derived from the surface of the local laterite beds, like the ruder weapons of chipped quartzite from the same district.

803. Celt, large, small smoothed butt, edge missing.

804. Celt, large, small rounded butt.

805. Celt, large, small pointed butt, elongated. Pl. V, fig. 8.

806. Celt, large, small smoothed butt, broken edge.

807. Celt, medium, hammer type, broad truncated butt and end. Pl. V, Fig. 11.

808. Celt, large, broken butt and edge.

809. Celt, large, sharp crescentic edge, pointed butt, Pl. V, Fig. 5.

810. Celt, medium, straight edge, small sharp butt.

811. Celt, small, elongated, small rounded butt, slightly broken edge, Pl. V, Fig. 10.

812. Celt, small rounded butt ; speckled trap.

406. Perforated hammerstone, broken ; sandstone ? Sattavedu, North Arcot. R. B. F.

SALEM DISTRICT.

The following specimens were presented by Mr. C. S. Middlemiss of the Geological Survey of India, in 1895. They were all obtained from a Hindu shrine at Mangalam, Tirapatur taluq, Salem district. All the specimens were originally polished.

4740. Celt, large, truncated butt, worn edge ; smooth trap. Pl. V, Fig. 1.

4741. Celt, large, small truncated butt, worn edge ; trap.

4742. Celt, large, small butt, sharp edge ; trap. Pl. V, Fig. 9.

4743. Celt, large, small smooth butt, sharp edge ; slightly broken ; trap.

4744. Celt, large, truncated butt, worn edge ; trap.

4745. Celt, large, small edged butt, sharp edge ; trap.

4746. Celt, large, small pointed butt, broken edge ; trap.

4747. Celt, medium, small pointed butt, oblique edge ; trap.

1180. Celt, large, flat truncated butt, broken face and edge ; trap. Shevaroy Hills, R. B. F.

1181. Celt, small, sharp axe edge, small butt. Shevaroy Hills Pl. V, Fig. 12.

3692. Celt small, pointed butt, face and edge slightly broken ; trap. Shevaroy hills. Mr. C. E. Cardew.

The following four specimens are from the Shevaroy Hills and were collected by Mr. R. Bruce Foote.

2619. Celt, large, elongated, pointed butt, broken edge ; polished trap.

2620. Celt, broad, small smoothed butt, worn edge ; polished trap. Pl. V, Fig. 4.

2621. Celt, medium, small pointed butt, worn edge ; speckled trap. Pl. V, Fig. 13.

2622. Celt, small, thin, broken edge ; polished trap.

COORG.

994. Celt, upper part missing, sharp crescentic edge; smoothed diorite. From the crest of a hill, 6 miles north of Mercara, Coorg. Mr. H. A. Mangles through the Asiatic Society of Bengal.

BELLARY AND ANANTAPUR DISTRICTS.

The Bellary district is one of the richest in prehistoric remains in the whole of the Indian Empire. The first discovery of the Neolithic settlements is due to William Fraser, who about 1872 found that the North or "Face" hill, and the Peacock Hill or "Kapgallu" four miles to the north-east, had been tenanted by Neolithic men, and made a small collection of celts, chisels and other domestic implements of stone from them. He presented a series of the leading forms, *e. g.*, celts, chisels, mealing stones and corn crushers to R. Bruce Foote, who, after exhibiting the collection at the

Vienna Exhibition in 1873, presented it to the Geological Survey Museum in Calcutta, whence later it passed into the Indian Museum. The remains of this collection are described below. In 1887 Foote regained some of his former presentations by exchange, while about the same time other valuable forms were unfortunately thrown away under the orders of the Superintendent of the Indian Museum at that time.

In 1872 Foote commenced his observations on the prehistoric remains of the district by examining the great cinder mound on the Budi Kanama, a low pass by which the grand trunk road from Bellary to Dharwar crosses the low band of Dharwar rocks, running up to the Tungabhadra river from the western end of the Copper Mountain ridge. This remarkable mound, which consists largely of slaggy cinders, is fifty feet high with a basal circumference of four hundred feet. It had previously attracted the attention of several observers and was figured by Colonel Lawford in the *Madras Journal of Literature and Science*, Vol. XLI. According to local legend it represents the site of the cremation of Edimbaussoorah, a "rakshasa" or giant, killed by the hero Bhima Saina, one of the "Panch Pandus," the five warrior brethren of the Mahabbarata epic. In several of the small gullies scored by rain action on the surface of the mound, Foote found a few typical Neolithic implements.

In December, 1884, Foote took up the systematic geological survey of the Bellary district, and met with considerable success in the prehistoric researches carried on in his spare time. He relates that his note book shows a list of seventy-seven localities (Palæolithic and Neolithic) at which he made finds, and of these thirty must be regarded as important either from the nature, or from the number of finds made, or from both.

On the North Hill at Bellary he confirmed the presence of the traces of an old settlement of the Neolithic people already indicated by Fraser, an interesting proof of the residence of the celt makers being the discovery of a series of polishing grooves worn deep into the rock surface by the grinding of their celts. The Kapgal or Peacock hill proved to be the most important Neolithic settlement in the country and was most prolific in implements of all kinds, and in all stages of manufacture. The dioritic trap dykes which traverse the hill, furnished the workers with an inexhaustible supply of excellent material of two sorts, the coarse black diorite, and a fine-grained pale greeny-grey to drab trap, which occurs in lenticular masses, often of large size, included in the diorite dyke. The site of the celt factory was on the north-east slope of the hill below the outcrop of the dyke, and here the surface among the grass and shrubs was covered with flakes of the two kinds of rock. It was among this extensive spread of

waste material that Foote procured over one hundred and eighty celts, which were found in all the several stages from the roughest beginning to the most finished and highly polished axe, adze or chisel. For purposes other than the manufacture of celts, adzes, hammers, chisels and scrapers the Neolithic peoples were much less restricted in their choice of materials ; thus, for mealing stones and corn crushers they used many varieties of granite, gneiss, hematite, and jasper, grits of Dharwar age, crystalline limestone, and many varieties of trap rock. For small tools they made great use of silicios stones, such as chert, agate, chalcedony, bloodstone, lydian stone and rock crystal ; these were converted into flakes of sorts, small scrapers, and strike-a-lights. The preparation of the flakes gave rise to the making of large numbers of cores of various sizes. These are much more commonly met with than the flakes which had been struck off them and applied to various purposes. The flakes prepared were used for knives, saws, drills, lancets, etc. ; and in addition to these there are the very interesting smaller forms known as pygmy flakes, the best of which are made of agate and chalcedony.

A number of graffiti consisting of rough sketches of human beings in groups and singly, and many figures of birds and beasts, are to be seen on the face of a conspicuous low cliff on the north side of the hill. They cannot, strictly speaking, be regarded as sculptures, for they are too little raised to be considered as bas-reliefs. Rock-bruisings is the best term by which to describe them. Some of the figures are strangely obscene and quite indescribable.

Foote has discovered and described numerous other Neolithic sites, cinder mounds and cinder camps, his extensive collections from which now rest in the Madras Museum. Further details regarding them are to be found in the *Notes on the Foote Collection*, from which most of the above paragraphs are quoted.

Specimens 296-333 are from North Hill, Bellary.

296. Celt, chipped and partly polished, truncated butt ; basalt. This and the following specimens were found on the surface, washed down from the terraces and rock shelters. Pl. VI, Fig. 14.

297. Part of polished edge of celt.

298. Missing.

299. Celt, upper part missing.

300. Celt, small, chipped, sharp edge, lower part missing ; basalt.

301. Celt, small, chipped, rude ; basalt.

302. Celt, small, chipped and polished, sharp edge, upper part missing ; basalt.

303. Missing.

304. Lower part of large, polished celt.

305. Celt, polished, rounded butt ; weathered diorite.

306. Celt, upper portion missing ; basalt.

307. Celt, smoothed and polished, thin, sharp edges ; basalt

308. Scraper ?, oval, chipped ; basalt.

309. Celt, small, chipped and polished ; basalt.

310. Striker ?, broken, chipped and pecked ; basalt.

311. Missing.

312. Missing.

313. Portion of mealing stone ; light gneiss.

314. Portion of mealing stone ; black and white gneiss.

315. Portion of mealing stone ; black and white gneiss.

316. Missing.

317. Missing.

318. Portion of flat rubbing stone ; bluish-white gneiss.

319. Missing.

320. Portion of pounding stone or crusher ; basalt.

321. Missing.

322. Portion of pounding stone or crusher ; basalt.

323. Portion of pounding stone or crusher ; basalt.

324. Missing.

325. Pounding stone or crusher, grooved for fingers ; basalt. Pl. V, Fig. 14.

326. Missing.

327. Portion of pounding stone or crusher ; basalt.

328. Pounding stone or small crusher ; trap.

329. Portion of a crusher ; diorite.

330. Missing.

331. Missing.

332. Pounding stone, unfinished.

333. Pounding stone ?, rude, discoid, edges worn ; basalt.

334. Celt, chipped, pointed butt. Peacock Hill, 4 miles north-east of Bellary. Pl. VI, Fig. 12.

335. Celt, chipped, and pecked, small, broken butt ; basalt. Peacock Hill. Pl. VI, Fig. 6.

336. Celt, small, chipped, pointed butt, sharp edges ; basalt. Peacock Hill. Pl. V, Fig. 18.

337. Celt, thick butt ; basalt. Peacock Hill.

338. Portion of mealing stone ; gneiss.

339. Pounding stone ; basalt.

340. Pounding stone ; basalt.

341. Celt, polished, broken sides and butt ; basalt. From surface of mound forming an ancient village site on summit of pass between Tornagul and Bellary.

342. Scraper, chipped ; basalt. From same locality as 341.

343. Portion of ball ; hematite. From same locality as 341.

344. Celt, broken butt ; polished diorite. From bank of the Tungabhadra, Hanpasagna, Bellary district.

The following specimens were all collected by R. Bruce Foote.

2623. Celt, upper part missing ; polished trap. Middle Hill, Sangan Kal, Bellary.

2624. Celt, flattened butt, weathered, polished and smoothed trap. Daroji Hill, Bellary.

2625. Celt, sides pecked, edge worn, large truncated butt ; polished hornblende schist. Gadiganur, Bellary. Pl. V, Fig. 17.

2626. Celt, large, sharp sides ; chipped and polished trap. South Hill, Sangan Kal, Bellary.

2627. Celt, small, weathered ; chipped and smoothed trap. Ramdury Hill, Bellary.

2628. Celt, rude, unfinished ; dense hornblende schist. Guntakal Junction, Anantapur.

2629. Celt, small, sharp sides ; polished trap. Bellary.

2630. Celt, large, elongated; chipped trap. Kapgal, Bellary district. Pl. VI, Fig. 2.

2631. Celt, medium ; chipped trap. South Hill, Langan Kal, Bellary.

2632. Celt, medium ; polished trap. Guntakal Junction, Anantapur.

2633. Celt, truncated butt, unfinished ; chipped dense hornblende schist. Gadiganur, Bellary. Pl. V, Fig. 20.

2634. A selected shapely stone, with four joint surfaces just commenced. South Hill, Langankal, Bellary.

2635. Celt, unfinished, first rough chipping seen on three sides. South Hill, Langalkal, Bellary.

2636. Mealing stone, large. Muṇna Karti Hill, Alur, Bellary. Pl. VII, Fig. 13.

2637. Mealing stone, small; granite. Hatti Fort Hill, Alur, Bellary.

2638. Pounder; polished trap. Tornagal Hill, Bellary.

2639. Striker, small; trap. Budihal Hill, Anantapur.

2640. Muller, pecked and polished trap. North Hill, Bellary.

2641. Corn crusher; jasper. Halakindi slag camp, Bellary.

2642. Corn crusher; epidote granite. Central Hill, Hospet, Bellary.

2643. Worked piece of trap. South Hill, Langankal, Bellary.

2644. Scraper, large and heavy; chipped trap. Same locality as 2643.

2645. Scraper, chipped trap. Kapgal Hill, Bellary.

The following specimens were obtained by exchange with Mr. C. E. Cardew in 1890.

3686*a*. Celt, medium; chipped trap. Kapgal Hill, Bellary.

3686*b*. Celt, medium, pointed butt, thin; chipped trap. Same locality.

3687. Chisel, thick; trap. Same locality.

3688. Missing.

3689. Celt, pecked sides, broken butt; smoothed hornblende sehist. Gadiganur, Bellary.

3690. Chisel, sharp edge, rounded sides; argillite. Kurri Kuppa near Gadiganur, Bellary.

3691. Celt, sharp sides, broken butt; chipped and polished trap.

THE UNITED AND CENTRAL PROVINCES.

Mr. H. P. LeMesurier was the first to draw attention to these remains in the southern parts of the United Provinces. (See *Proc., Asiatic Soc. Bengal*, February, 1861). His specimens came mainly from the vicinity of Kirwi. In 1862 W. Theobald added considerably to our knowledge of the Banda implements, figured a series, pointed out the principal types, and further extended the area of their prevalence to 200 miles east of the Tons river. (*Journ. Asiatic Soc. Bengal*, 1862, page 323). In 1879, J. Cockburn described the occurrence and appearance of a number of specimens which he collected in the Banda district. (*Journ. Asiatic Soc. Bengal*, 1879, pp. 137-141). His specimens were presented to the Indian Museum in

1882 and are catalogued below. Cockburn writes, "The majority of my specimens were picked up under Pipal trees, sometimes on the road side, but more usually growing on the high bunds of the tanks so common in Banda; a number were removed by me from off a hugh Phallus, where they lay in the groove of the female emblem." Others he obtained from the stone slabs and mud altars of ruined temples, and from the fissures and clefts of trees. "With regard to the finding of these celts by the natives, most of them have, I believe, been found in excavations a few feet deep; some have doubtless been turned up by the plough; a large proportion, again, have been found in watercourses or streams, into which they had been washed from the soil; others have been found on the eroded surface of fields. In one instance alone did a celt picked up by me show unquestionable traces of having been lately deposited under the tree where I found it." This supposition does not agree with that of Theobald, who accounted for the abundance of the celts in the vicinity of Kirwi by the hypothesis that it was due to some "superstition which induced men of old time to collect these relics of a still older age, and convey them to the shrines and localities where they are now so abundant, so that celts collected over thousands of square miles are now accumulated about Kirwi and its environs."

Figures of typical Banda celts are to be found in the papers quoted above and also in the *Manual of the Geology of India*, Plate XXI, fig. 4. The material of which they are composed is either audesite, diorite or basalt, but owing to the impossibility of determining the exact petrological nature of the rock without injuring the specimen, I have usually described it under the field term "trap."

The Neolithic celts from the Central Provinces are very similar to those from the southern districts of the United Provinces, and unquestionably belong to the same culture area. Details of the finds are now, in the majority of cases, lost. Unless otherwise stated, all specimens are from the surface.

Specimens 56-88 were all collected by J. Cockburn. Nos. 56-79 are from Duvanda, and the rest from Hulwa, Banda District.

56. Celt, broad; traps.

57. Celt, narrow, pointed butt; trap.

58. Celt, broad; trap.

59. Celt, large, with straight sides, part of face missing; indurated shale.

60. Celt, narrow, pointed butt; coarse trap.

61. Celt, broad end; trap.

62. Celt, narrow; trap.

63. Celt, broad end, butt missing; polished trap.

64. Hammer-stone, broad, thick, both ends rounded.

65. Celt, large, unfinished, partly chipped, part of butt and side missing; fine—grained trap.

66. Celt, very large; diorite. (*Journ. Asiatic Soc. Bengal*, 1879, Pl. XVI. G.)

67. Celt, small; trap.

68. Celt, elongated, only partly finished, upper portion chipped; hard, dark, indurated shale (*loc. cit.* Pl. XVI, H.).

69. Celt, rounded butt; trap.

70. Missing.

71. Celt, narrow butt; trap.

72. Celt, narrow butt; trap.

73. Hammerstone?, thick part of end missing.

74. Missing.

75. Pounder, large, conical; coarse diorite.

76. Celt, small, flattened butt.

77. Missing.

78. Celt, elongated type, narrow butt; trap.

79. Celt?, almond-shaped; weathered trap?.

80. Missing.

81. Celt, small, polished, smoothed butt, rounded

82. Celt, small, broad rounded butt.

83. Celt, large, elongated; part of edge wanting.

84. Celt, small; trap.

85. Celt, small, rounded butt.

86. Celt, broad type; polished fine trap.

87. Hammerstone, broad type, broken butt; coarse trap.

88. Celt, small.

189. Grooved and polished piece of gneiss. Portion of a hammerstone?; said to have been found *in situ* with bones and *Ampullaria* shells in a cutting near the Resid River, Mainpuri district. by Captain Ross R. E. in 1882.

1800. Cast of pounder.

1801. Cast of hammerstone.

1802. Cast of hammerstone.

1803. Cast of celt. These four casts are from Banda and Mirzapur districts. The implements themselves were presented to the British Museum by Mr. J. H. Rivett-Carnac. They are described and figured *in Journ. Asiatic Soc. Bengal,* 1883, Pl. 1, pp. 227-230 ; Pl. XIX, fig. 8, 9, and 16.

999. Celt, large, elongated, pointed ; coarse trap, Manickpore, Banda district. Pl. VI, Fig. 10. Specimens 999-1010 were presented to the Asiatic Society of Bengal by Mr. H. P. Le Mesurier, and are described in the *Journal* for 1861.

1000. Hammerstone, medium; coarse trap, Manickpore. Pl. VI, Fig. 5.

1001. Celt, polished, pointed butt; fine trap. Manickpore. Pl. V, Fig. 19.

1002. Celt, polished, truncated butt, cutting edge worn ; fine trap. Surreaon, 5 miles north by west of Manickpore.

1003. Celt, portion of broken specimen. Same locality.

1004. Celt, polished, elongated ; edge and butt broken ; trap. Same locality.

1005. Celt, tapering, edge worn ; trap. Koh, 4 miles east of Kirwee.

1006. Celt, butt missing ; coarse trap. Koh, 4 miles east of Kirwee.

1007. Celt, but missing ; fine trap. Tirhowan.

1008. Missing.

1009. Celt, large ; coarse trap. Kirwee ?.

1010. Celt, polished ; tapers to pointed butt ; coarse diorite. Kirwee.

1019. Hammerstone, oval ; flattened ends, polished, conical hole cut into one side. Hutwah, Banda District. Pl. VI, Fig. 7. Specimens 1019 to 1030 were collected in the Banda district by J. Cockburn. The originals of the casts are said to be in the British Museum.

1020. Celt, large, blade portion polished, rest chipped ; tapers to pointed butt ; crescentic cutting edge ; fine—grained trap. Banda.

1021. Celt, medium, polished ; tapers to pointed butt ; greyish green diorite. Banda.

1022. Celt, medium, elongated; tapers to pointed butt ; trap ?. Banda Pl. VII, Fig. 3.

1023. Celt, medium, tapers to pointed butt ; trap ?. Banda.

1024. Hammerstone (cast) ; indented around centre for fastening.

1025. Hammerstone (cast).

1026. Cast of large uncertain implement.

1027. Cast of large perforated ringstone.

1028. Cast of tapered polished celt, notched and partly perforated near butt.

1029. Cast of hammerstone, indented around centre for fastening.

1030 Cast of hammerstone ?, with circular indentations in faces.

The following specimens were all presented to the Museum by Major-General A. Cunningham in 1885.

1804. Celt, small, polished ; truncated butt ; trap. Acha, Banda district.

1805. Celt, medium, polished edge ; small butt ; trap. Acha, Banda district.

1806. Celt, medium, polished, small butt ; trap. Acha, Banda district.

1807. Celt, medium, weathered, pointed butt ; Agrahonra, Banda district.

1808. Celt, small, edge worn ; coarse diorite. Aliya, Banda district. Pl. V, Fig. 15.

1809. Celt, medium, sides slightly flatter than usual. Arwa, Banda district.

1810. Celt, medium, worn edge ; coarse trap. Babera, Banda district.

1811. Celt, medium, tapers to small butt. Babera, Banda district.

1812. Celt, medium, weathered trap. Bagrahi, Banda district.

1813. Celt, medium, broad, pointed butt, crescentic edge, polished. Same locality.

1814. Celt, medium, tapering ; fine trap. Bisra district.

1815. Celt, medium, tapering. 9 miles E. N. E. of Kirwee, Banda district.

1816. Celt, large, part of crescentic edge missing. E. N. E. of Kirwee, Banda district.

1817. Celt, small, edge broken ; trap. Deokali, Banda district.

1818. Celt, tapers to pointed butt, worn edge ; trap. Chipni, Banda district

1819. Celt, medium, pointed butt, sharp edge, weathered. Gurha, Banda district.

1820. Celt, elongated, tapers to pointed butt, weathered ; trap. Banda district.

1821. Celt, pointed butt, sharp polished edge. Gaorikar, Banda district.

1822. Celt, large, sharp edge, pointed butt ; trap. Gaorikar, Banda district.

1823. Celt, medium, flattened butt, worn edge ; trap. Gaorikar, Banda district.

1824. Celt, medium, partly polished and partly chipped, elongated ; fine trap. Gaorikar, Banda district.

1825. Celt, small, pointed butt, edge missing. Girwa, Banda district.

1826. Celt, medium, pointed butt, worn ; coarse trap. Garohapa, Banda district.

1827. Celt, medium, small rounded butt, worn edge ; trap. Jamuara, Banda district.

1828. Celt, large, partly chipped and partly polished ; sharp chipped edges ; unfinished ; trap. Kohari, Banda district.

1829. Celt, large, partly chipped and partly polished ; edges smoothed ; trap. Kohari, Banda district.

1830. Celt, large, pointed butt, broken edge ; weathered. Near Kasaha, N. E. of Karwi, Banda district.

1831. Celt, medium, partly chipped, edge polished, flat butt, chipped and ground sides ; fine trap. Kamasine, Banda district.

1832. Celt, medium, tapers to slightly rounded butt, weathered. Kulla Khera, Babera, Banda district.

1833. Celt, large, polished, tapers to slightly pointed butt ; coarse weathered trap. Same locality as 1832.

1834. Celt, large, pointed butt, edge worn ; fine trap. Loreta, 20 miles south-west of Banda.

1835. Celt, small ; weathered trap. Laoriaza, Tirhowan, Banda district.

1836. Celt, small, broad butt, weathered. Tirhowan, Banda district.

1837. Celt, medium, distorted, broken butt ; fine trap. Tirhowan, Banda district.

1838. Celt, large butt, polished ; fine trap. Mataond, Banda district.

1839. Celt, large, elongated, polished edge, partly smooth-faced, truncated butt ; coarse trap. Same locality. Pl. VI, Fig. 3.

1840. Celt, medium, wedge-shaped, flat sides. Mangrehai, Banda district.

1841. Celt, medium, pointed butt, very weathered ; coarse trap. Banda district.

1842. Celt, large, pointed butt; weathered trap. Muraol, Banda district.

1843. Celt, large, truncated butt, partly chipped, crescentic polished edge, sharp sides. Naraini, Banda district.

1844. Celt, medium, slightly rounded butt, weathered; trap. Banda district.

1845. Celt, medium, elongated, rounded; coarse trap. Banda district.

1846. Celt, small, slightly rounded butt; weathered; coarse trap. Banda district.

1847. Celt, large, partly chipped, edge polished, small butt; fine trap. Nardahu, near Kalinjar, Banda district. Pl. VI, Fig. 1.

1848. Hammerstone, ovoid, grooved sides, worn; hard light reddish-grey sandstone. Nalla of Kaina River near Banda.

1849. Celt, large, pointed butt, weathered, worn edge; coarse trap. Nuseni, Banda district.

1850. Celt, large, elongated butt; worn edge; coarse trap. Ora, Banda district.

1851. Celt, medium, truncated butt, weathered; coarse trap. Path, Banda district.

1852. Celt, large, slightly flattened butt, worn edge; coarse trap. Pahari, Banda district.

1853. Celt, small, very elongated butt, worn edge; coarse trap. Pahari, Banda district.

1854. Celt, medium, very weathered; coarse trap. Pahari, Banda district.

1855. Celt, medium, polished crescentic edge; fine trap. Pailani, Banda district.

1856. Celt, medium, polished, small flattened butt; trap ?. Pailani.

1857. Celt, large, polished, butt small and slightly rounded; coarse trap. Pangarha, Banda district.

1858. Celt, medium, thin, pointed butt, small crescentic edge; coarse trap. Pungari near Kartal, Banda district.

1859. Celt, medium, elongated, broken butt, weathered; coarse trap. Rajapore, Banda district.

1860. Celt, medium, elongated, small flattened butt, worn edge; fine trap. Rajapore, Banda district.

1861. Celt, large, elongated, rounded butt, worn edge; coarse trap. Rangarh, Banda district. Pl. VI, Fig. 8.

1862. Celt, medium, elongated, pointed butt, weathered; coarse trap. Risri, Banda district.

1863. Celt, medium, elongated, small slightly rounded butt; coarse trap. Shahpur, Banda district.

1864. Celt, elongated, pointed butt, weathered; coarse trap. Shahpur district.

1865. Celt, medium, polished, broad but rapidly tapering to small rounded butt, weathered; coarse trap. Tera, Banda district.

1866 Celt, medium, edge slightly broken, weathered; coarse trap. Tera, Banda district.

1867. Celt, large, elongated, slightly rounded butt, weathered; coarse trap. Tera, Banda district.

1868. Celt, medium, elongated, edged butt, edge broken; weathered coarse trap. Unaosa, Banda district.

1869. Celt, medium, broad, straight butt, polished; fine trap. Ujretha, Banda district.

1870. Celt, large, pointed butt, edge broken; fine trap? Banda district.

1871. Hammerstone, small; coarse trap?. Bisramganj, Panna.

1872. Celt, elongated, pointed butt; weathered coarse trap. Jhanna near Panna.

1873. Celt, medium, small, flat butt, edge worn, weathered; coarse trap. Jhanna near Panna.

1874. Celt, medium, small flat butt; coarse trap. Same locality.

1875. Celt, medium, broken butt, coarse trap, weathered. Bisramganj, Panna.

1876. Celt, medium, small smooth butt, weathered, edge slightly broken; trap. Banda district.

1877. Celt, small, tapering, edge worn; weathered coarse trap. Panna.

1878. Celt, large, elongated, edge worn. Jubbulpore.

1879. Celt, large, elongated, small flat butt, crescentic edge; fine trap. Same locality.

1880. Celt, medium, small rounded butt, part of one face and edge broken; weathered fine trap. Same locality.

1881. Celt, medium, small flattened butt, broken; weathered coarse trap. Same locality.

1882. Celt, medium, elongated, slightly curved edge, broken; trap? Same locality.

1883. Celt, small, larger rounded butt, corners of edges smoothed down; trap? Same locality.

1884. Celt, medium, shapely, small rounded butt; retains part of original polish; trap?. Same locality.

1885. Celt, small, thick edge, very worn; coarse trap. Same locality.

1886. Celt, large, broad edge, tapers to small rounded point, edge worn; trap?. Kundam, Jubbulpore.

1887. Celt, medium, cracked and weathered; coase trap. Same locality.

1888. Celt, large, flat, edged butt, worn and weathered; trap. Same locality.

1889. Celt, medium, elongated, small flattened butt; coarse trap. Mahoba, Bundelkhand.

1890. Celt, large, elongated, small rounded butt, worn edge, bears part of original polish. Same locality.

1891. Celt, medium, small rounded butt, weathered; coarse trap. Same locality.

1892. Celt, medium, small rounded butt, weathered; coarse trap. Same locality.

1893. Celt, medium, tapers to small rounded butt, edge worn; fine trap. Same locality.

1894. Celt, medium, tapers to rounded butt, edge worn; coarse trap. Same locality.

1895. Celt, small, tapers to flatter butt, edge sharp; weathered trap. Near Mahoba.

1896. Celt, small, elongated, pointed butt, edge sharp; weathered trap. Terayan, 6 miles west of Kirwi.

1897. Missing.

1898. Celt, medium, flat butt, edge very flattened and worn; dark trap, neighbourhood of Kirwi.

1899. Celt, small, broad truncated butt, broad flat edge; trap. Damoha, Saugor district.

1900. Celt, medium, flat, rough, edge smooth, upper part chipped, sharp sides and butt; fine trap, neighbourhood of Kirwi.

1901. Celt, large, flat, edge smooth, upper part chipped, sides partly chipped and then smoothed, sharp butt; weathered trap, Kasahai, 3 miles north-east of Kirwi.

1902. Celt, medium, flat, elongated, small flattened butt, polished, broken; fine trap. Damoha, Saugor district.

1903. Celt, medium, edge and part of one face polished and rest chipped, sharp sides and butt; fine trap. Same locality.

1904. Celt, medium, edge and one face partly smoothed and rest chipped, sharp sides and butt; fine trap. Same locality.

1905. Celt, medium, smoothed with marks of chipping on sides, small rounded butt, sharp edge; fine trap. Same locality.

1906. Celt, small, semicircular smoothed edge, chipped sides and butt; fine trap. Same locality.

1907. Celt, small, pointed butt, worn edge, weathered; coarse trap. Same locality.

1908. Celt, small, large flattened butt, worn edge, weathered; coarse trap. Hatha, Saugor district.

1909. Celt, medium, crescentic polished edge, rest chipped, sides and butt sharp; fine trap. Hatha district.

1910. Celt, medium, straight edge, worn sides and butt, pecked and chipped faces partly smoothed; fine trap. Same locality.

1911. Celt, medium, crescentic edge smoothed, rest chipped; fine trap. Same locality.

1912. Celt, medium, straight sharp edge, smoothed, sides and butt chipped, unfinished; trap. Same locality.

1913. Celt, medium, smooth crescentic edge, rest chipped, sides and butt partly smoothed, unfinished; trap. Same locality.

1914. Celt, medium, elongated, smooth pointed butt, edge worn; weathered trap. Garhi Morila, Saugor district.

1915. Celt, large, pointed butt, edge worn, weathered; trap. Same locality.

1916. Celt, medium, pointed flattened butt, edge worn; weathered trap. Banda district.

1917. Celt, medium, smooth crescentic edge; butt partly smooth; fine trap. Banda. Pl. VII, Fig. 2.

1918. Celt, medium, generally smooth but faces and sides show remains of chipping, smooth butt; fine trap. Saugor district.

1919. Celt, medium, generally smooth but faces and sides show remains of chipping, butt sharp, edge worn, thicker; fine trap. Same locality.

1920. Celt, large, tapers to small rounded point, sharp edge, little worn; weathered trap. Chandla Charkahri.

1921. Celt, large, rounded butt, edge broken, weathered; coarse trap. Supa Charkahri.

1922. Celt, large, semicircular cutting edge meeting sharp sides continued to butt; trap. Sarbhai Charkahri. Pl. VII, Fig. 5.

1923. Celt, medium, elongated, broad pointed butt, edge broken; fine trap. Golganj, Chattarpur.

1924. Celt, medium, elongated, broad pointed butt, edge worn; coarse trap. Same locality.

1925. Celt, small, sharp truncated butt, broken, one face ground flat; fine trap. Khajuraho.

1926. Celt, medium, small flattened butt, edge thin and worn, weathered; coarse trap. Maraieh, Bhajawar.

1927. Celt, medium, elongated, small rounded butt, edge sharp and broken; trap. Kalinjar.

1928. Celt, large, broad, partly chipped, partly smoothed, sharp edges and sides; trap. Same locality.

1929. Celt, medium, pointed butt, edge flatter than usual, weathered; coarse trap. Garhwa.

1930. Celt, large, elongated, small butt, cutting edge broken; weathered trap. East of Kalinjar.

1931. Celt, medium, chipped and smoothed, broad at cutting edge; fine trap. Baghwa, Hamirpur district.

1932. Celt, large, elongated, pointed butt, weathered; trap. Chandrawara, Betwanti River, Hamirpur.

1933. Celt, large, smooth crescentic edge, chipped faces, sharpened and smoothed sides, butt broken; fine trap. Aloti, Hamirpur district.

1934. Celt, medium, edge and part of faces smoothed, sides chipped and smoothed, broad pointed butt; trap. Same locality.

1935. Celt, large, chipped and smoothed, upper half missing, crescentic edge; trap. Marpha.

1936. Celt, medium, chipped and smoothed, unfinished; trap. Same locality.

1937. Celt, medium, chipped and smoothed, pecked sides, straight and worn edge, upper half missing; trap. Same locality.

1938. Celt, medium, chipped and smoothed, sharp sides, straight edge, upper part missing ; trap. Same locality.

1939. Celt, medium, chipped and smoothed, worn edge, upper part missing ; trap. Same locality.

1940. Celt, small, chipped and smoothed, worn edge, upper part missing ; trap. Same locality.

1941. Scraper, ovoid ; trap. Same locality.

1942. Celt, medium, chipped and smoothed, worn edge, upper part missing ; trap. Same locality.

1943. Celt, medium, elongated, truncated butt, worn edge, retains part of polish ; trap. Near Gulrampur, Marpha.

1944. Celt, medium, elongated, small rounded butt, worn edge ; trap. Naugana, south-west of Marpha.

1945. Perforated hammerstone, large, elongated, ovoid, broken ; hard reddish-grey sandstone. Sirmal.

1946. Perforated hammerstone, large, broken, ovoid ; weathered reddish sandstone. Morina Pahar.

1947. Perforated hammerstone, complete, large, weathered, ovoid ; brownish grey sandstone. Hata, 6 miles east of Partabgunj. Pl. VI, Fig. 9.

1948. Hammerstone, broken, perforation not complete ; hard reddish sandstone. Between Hamumana and Pratapgunj.

1949. Celt, chipped, unfinished, upper part missing ; trap. Marpha.

1950. Celt, chipped, unfinished, upper part missing ; trap. Marpha.

1951. Celt, chipped and pecked, unfinished, sharp sides, upper part missing trap. Marpha. The following specimens up to and including 2017 are from the same locality.

1952. Celt, chipped, sharp sides, upper part missing, unfinished ; trap.

1953. Celt, chipped and pecked, sharp sides, upper part broken off, unfinished ; trap.

1954. Celt, chipped and pecked, upper part missing, unfinished ; trap.

1955. Celt, chipped and pecked, upper part missing, unfinished ; trap.

1956. Scraper ?, rude, large, unfinished ; trap.

1957. Scraper ?, ovoid, chipped and pecked, unfinished ; trap.

1958. Celt, chipped and pecked and partly smoothed, truncated butt, side and edge broken, unfinished ; trap.

1959. Celt, chipped and pecked, sharp edges, upper part broken, unfinished; trap.

1960. Celt, chipped and pecked, sharp edges, upper part broken, unfinished; trap.

1961. Celt, chipped and pecked, chipping commenced on sides, incomplete; trap.

1962. Celt, chipped and pecked, sharp sides, broken butt, unfinished; trap.

1963. Celt, chipped, sides and faces untouched, broken butt; trap.

1964. Celt, chipped and pecked, sharp sides, pointed butt, unfinished; trap.

1965. Celt, one side chipped and pecked, pointed butt, unfinished; trap.

1966. Celt, chipped and pecked, sharp crescentic edge; trap.

1967. Celt, chipped and pecked, pointed butt, unfinished; trap.

1968. Celt, chipped, elongated, pointed butt, unfinished; trap.

1969. Celt, chipped, elongated, unfinished; trap.

1970. Celt, edge chipped and pecked, broken butt, sides untouched; trap.

1971. Celt, chipped, broken butt, sharp sides, unfinished; trap.

1972. Celt?, chipped, flaked; trap.

1973. Flake, pear-shaped, worked sides; trap.

1974. Worked piece of trap.

1975. Celt?, chipped and pecked, broken, unfinished; trap

1976. Celt, chipped, broken butt, unfinished; trap.

1977. Celt, chipped, thick, unfinished; trap.

1978. Scraper?, chipped, elongated, unfinished; trap.

1979. Worked piece of trap.

1980. Worked piece of trap.

1981. Worked piece of trap.

1982. Worked piece of trap, chisel?

1983. Worked piece of trap, chisel?

1984. Scraper, worn, pecked edge; trap.

1985. Worked piece of trap.

1986. Scraper, semicircular, unfinished; trap.

1987. Celt, chipped, upper part missing, unfinished; trap.

1988. Celt, chipped, upper part missing, unfinished; trap.

1989. Butt of unfinished celt ?, chipped and pecked; trap.

1990. Part of broken unfinished celt ?, chipped; trap.

1991. Unfinished scraper; trap.

1992. Trap flake, pecked at edges.

1993. Trap flake, pecked at edges

1994. Trap flake, pecked at edges.

1995. Trap flake.

1996. Trap flake, pecked at edges.

1997. Trap flake, pecked at edges.

1998. Missing.

1999. Pear-shaped piece of trap, chipped on one edge.

2000. Scraper, ovoid, pecked edge; trap.

2001. Trap flake, pecked at edge.

2002. Trap flake, pecked at edges.

2003. Trap flake, pecked at edges.

2004. Trap flake.

2005. Trap flake, chipped and pecked at edges.

2006. Trap flake, chipped and pecked at edges.

2007. Trap flake, chipped and pecked at edges.

2008. Trap flake, chipped and pecked at edges.

2009. Trap flake, chipped and weathered.

2010. Trap flake, chipped and weathered.

2011. Trap flake, chipped and weathered.

2012. Trap flake, chipped and weathered.

2013. Missing.

2014. Trap flake, chipped and pecked at edges

2015. Scraper, chipped and pecked at edge; trap.

2016. Trap flake, chipped and pecked at edge.

2017. Trap flake, chipped and pecked at edge.

2018. Flake, reddish and black banded quartzite. Morhana Pahar.

2019. Scraper, weathered; hard reddish sandstone. Same locality.

2020. Flake, hard greyish quarzite. Same locality.

2021. Hammerstone or crusher, spheroidal, one side flattened; hard dirty grey sandstone. Ashthihuga, Mirzapur district. Pl. VII, Fig. 14.

2022. Hammerstone, broken; hard dirty grey sandstone. Bharkacha.

2023. Hammerstone, rectangular, broken; dark red quartzite. Lurhwara Pahar, Karwi.

2024. Hammerstone, rectangular, hard dirty grey sandstone. Same locality.

2025. Flake, hard dirty grey sandstone or quartzite. Morhana.

2026. Flake, hard dirty grey sandstone or quartzite. Morhana.

2027. Piece of hard pepper and salt sandstone with three flattened faces. Morhana Pahar cave.

2028. Hammerstone, broken, cylindrical; greenish-grey grit. Morhana Pahar cave.

2029. Hammerstone, broken, perforated; hard reddish-brown sandstone. Mangawan.

2030. Hammerstone, partly prismatic, partly cylindrical, ends worn; polished grey quartzite. Laorni, Chattarpur.

2031. Hammerstone, broken, worn ends, hard grey sandstone; Kajutanala, Mirzapur district.

2032. Hammerstone, broken, cylindrical; hard reddish sandstone. Natta, south of Banda.

2033. Hammerstone, or polisher, tapering; banded grey and brownish quartzite. Lewa, Hamirpur district.

2034. Hammerstone, roughly rectangular, prismatic; dark grey quartzite. Kasahai, 3 miles north-east Karwi.

2035. Hammerstone, flattened, ovoid, broken, partly perforated; hard brownish sandstone. Rewah territory.

2036. Hammerstone, roughly rectangular prismatic; hard reddish-brown sandstone. Rajura Nala, Mirzapur district.

2037. Mealing stone, polished, worn, broken; hard dirty grey sandstone. Darkiram hills, south-east Mirzapur district.

2038. Corncrusher, spherical; hard dirty grey quartzite. Unaosa, Banda district.

2039. Hammerstone, cylindrical, ends worn, three sides with one circular depression, fourth side with three depressions. Chandi, Hamirpur district. Pl. VII, Fig. 11.

2040. Hammerstone, grooved for fastening, elongated spheroid; quartzite. Tikari, Hamirpur district. Pl. VII, Fig. 12.

2041. Hammerstone, irregular with various depressions; trap. Kabrai, Hamirpur District.

2042. Hammerstone, cylindrical, worn end, broken, each face has one circular depression; quartzite. Achaol, Hamirpur district.

2043. Hammerstone, with two grooved depressions round the body, ends have depressions, broken; hard reddish ferruginous sandstone. Chatni, west of Marpha. Pl. VI, Fig. 13.

2044*a*. Hammerstone, long, rectangular, prismatic, rounded worn end, with depressions for holding; polished brown quartzite but covered with a thin deposit of calcium carbonate. Same locality.

2044*b*. Hammerstone, ovoid pebble, ends worn, two depressions on each face. Gaorchar Jaghir.

2045. Missing.

2046. Scraper, trap, flaked and pecked. Marpha.

2047. Scraper, trap, flaked and pecked. Marpha.

2048. Chisel, broken; trap. This and the following specimens up to 2093 are from Marpha.

2049. Scraper or knife, long trap flake pecked on both sides.

2050. Scraper or knife, long trap flake pecked on both sides.

2051. Scraper or knife, long trap flake pecked on both sides.

2052. Scraper or knife, long trap flake pecked on both sides.

2053. Scraper, formed from trap flake.

2054. Flake, trap.

2055. Flake, pecked on both sides; trap.

2056. Flake, pecked on both sides; trap.

2057. Scraper, formed from trap flake.

2058. Scraper, pecked on both sides; trap.

2059. Scraper, formed from trap flake.

2060. Flake, chipped and pecked.

2061. Flake, chipped and pecked.

2062. Flake, chipped and pecked.

2063. Scraper, formed from trap flake.

2064. Scraper, formed from trap flake.

2065. Scraper, formed from trap flake.

2066. Flake, pecked edges; trap.

2067. Large piece of trap, chipped and pecked along edges.

2068. Large piece of trap, chipped and pecked along edges.

2069. Large piece of trap, chipped and pecked along edges.

2070. Flake, chipped and pecked along edges.

2071. Trap flake, pecked on edges.

2072. Scraper, made from trap flake.

2073. Scraper, made from trap flake.

2074. Scraper, made from trap flake.

2075. Trap flake, chipped and pecked edges.

2076. Trap flake.

2077. Trap flake.

2078. Scraper, made from trap flake, pecked on edges.

2079. Scraper, made from trap flake, pecked on edges.

2080. Scraper, made from trap flake, pecked on edges.

2081. Piece of quartz, chipped into a pear shape.

2082. Trap flake, pecked edge.

2083. Trap flake.

2084. Scraper, made from trap flake.

2085. Trap flake, chipped and pecked on edges.

2086. Piece of trap.

2087. Scraper; trap.

2088. Scraper; trap.

2089. Piece of trap, triangular, chipped, pecked on edges.

2090. Piece of trap, with projecting handle-like cleavage prism.

2091. Scraper, formed from chipped piece of trap.

2092. Piece of trap, chipped and pecked on edges.

2093. Chipped piece of trap.

2094. Chipped piece of hard, reddish, ferruginous sandstone, perhaps natural. This and the next specimens to 2100 are from Morhana Pahar.

2095. Chipped piece of hard, reddish, ferruginous sandstone, perhaps natural.

2096. Reddish-grey standstone flake.

2097. Pointed piece of dirty grey sandstone.

2098. Reddish-grey sandstone flake.

2099. Cleavage fragment, reddish-grey sandstone.

2100. Cleavage fragment, pecked reddish-grey sandstone.

2101. Chipped stone fragment. Bharkaohlia.

2102. Borer, pointed piece of reddish sandstone.

2103. Not an implement.

2104. Reddish-grey chert flake. Banda.

2105. Core, translucent chalcedony, 7 flakes. Morhana Pahar. The following specimens to No. 2154 are from the same locality.

2106. Core, mottled grey chert. 8 flakes.

2107. Core, broken, veined greyish chert. 7 flakes.

2108. Core, greenish jasper. 6 flakes.

2109. Core, grey agate. 7 flakes.

2110. Core, mottled dirty grey chert. 8 flakes. Pl. VIII, Fig. 9.

2111. Core, mottled yellowish-grey chert. 6 flakes.

2112. Core, mottled yellowish-grey chert. 8 flakes.

2113. Core, veined grey chert, broken. 5 flakes.

2114. Core, dirty pinkish-grey chert 7 flakes.

2115. Core, drab chert. 11 flakes.

2116. Core, mottled brown and grey chert. 8 flakes.

2117. Core, mottled grey and black chert. 8 flakes.

2118. Core, dirty white chert, 15 flakes. Pl. VIII, Fig. 11.

2119. Missing.

2120. Core, mottled yellowish-white chert. 7 flakes.

2121. Core, mottled reddish-grey and dirty white chert. 5 flakes.

2122. Core, chalcedony, translucent. 8 flakes.

2123. Core, greyish-white chert. 11 flakes.

2124. Core, greyish-white chert. 6 flakes.

2125. Core, mottled dirty white and grey chert. 8 flakes.

2126. Core, dark grey chert. 8 flakes.

2127. Core, dark bluish-grey chert. 5 flakes.

2128. Core, white agate. 9 flakes.

2129. Core, grey chert. 7 flakes.

2130. Core, mottled light-yellowish grey chert. 11 flakes.

2131. Core, white agate. 7 flakes.

2132. Core, dirty white agate. 10 flakes.

2133. Core, dirty white chert. 13 flakes.

2134. Flake, grey chert.

2135. Core, dirty white chert. 7 flakes.

2136. Core, translucent reddish agate. 10 flakes.

2137. Core, translucent agate. 5 flakes.

2138. Core, banded pinkish-white agate. 7 flakes.

2139. Core, translucent agate. 8 flakes.

2140. Core, grey and dirty white chert. 9 flakes.

2141. Core, dirty white chert. 15 flakes.

2142. Core, reddish-grey chert. 6 flakes.

2143. Core, dirty white chert. 7 flakes.

2144. Missing.

2145. Core, dirty white chert. 6 flakes.

2146. Core, white agate. 9 flakes.

2147. Core, agate. 6 flakes.

2148. Core, banded reddish agate. 8 flakes.

2149. Core, banded white agate. 12 flakes.

2150. Core, mottled greyish-white chert. 9 flakes.

2151. Core, translucent agate. 7 flakes.

2152. Core, dirty white chert. 10 flakes.

2153. Core, banded white agate. 6 flakes.

2154. Core, mottled dark grey chert. 8 flakes.

2155. Core, light reddish-grey chert, large. 11 flakes.

2156. Core, yellowish-grey chert. 7 flakes.

2157. Core, white chert, large. 13 flakes. Pl. VIII, Fig. 8.

2158. Core, white and light reddish chert. 8 flakes.

2159. Core, cream chert, large. 13 flakes.

2160. Core, yellowish-grey chert, large, double. 13 flakes.

2161. Core, white chert, large, 17 flakes.

2162. Core, translucent grey agate. 7 flakes.

2163. Core, dirty white chert. 9 flakes.

2164. Core, yellowish-grey chert. 6 flakes.

2165. Core, dirty white chert. 11 flakes.

2166. Core, mottled greyish-white chert. 8 flakes.

2167. Core, white chert. 10 flakes.

2168. Core, white chert. 8 flakes.

2169. Core, slatey grey chert. 6 flakes.

2170. Missing.

2171. Core, dirty white chert. 8 flakes.

2172. Core, light fawn chert, large. 10 flakes.

2173. Core, white chert. 9 flakes.

2174. Core, speckled greyish-blue and brown chert, broken. 4 flakes

2175. Core, dirty white chert. 6 flakes. Pl. VIII, Fig. 10.

2176. Core, banded dirty white and grey chert. 13 flakes.

2177. Core, greenish-white chert. 10 flakes.

2178. Core, light purplish-grey chert. 10 flakes.

2179. Core, translucent agate. 10 flakes.

2180. Core, opaque agate. 7 flakes.

2181. Core, reddish-white chert, large. This and the following specimens up to No. 2280, are from Partabganj, and were presented by Major-General A. Cunningham in 1885.

2182. Flake, banded dirty chert, large.

2183. Flake, brownish-grey chert, large

2184. Flake, dirty white chert.

2185. Missing.

2186. Flake, spotted yellowish-brown and grey chert, sharp.

2187. Flake, dirty white chert, worked.

2188. Flake, mottled pinkish-white and slate chert, worked and pointed.

2189. Flake, mottled grey chert, pecked edges, broad point, scraper ?

2190. Flake, banded grey chert, scraper.

2191. Flake, dirty white chert, worked pecked edge, scraper.

2192. Flake, mottled dirty white chert, pointed.

2193. Missing.

2194. Flake, banded agate, pointed.

2195. Flake, steel-grey and dirty white chert, small, pointed.

2196. Flake, mottled dirty white chert, pointed and worked.

2197. Flake, dark red chert, edges worked.

2198. Flake, dirty white chert, worked.

2199. Flake, brownish-white, worked, pecked edge.

2200. Flake, reddish-brown chert, worked.

2201. Flake, agate, worked. This and the following to 2228. are broad leaf flakes.

2202. Flake, grey chert, worked.

2203. Not an implement.

2204. Flake, reddish-grey chert, worked.

2205. Flake, variegated brownish chert, worked.

2206. Flake, banded white and grey chert, worked.

2207. Flake, banded grey shades of chert, worked.

2208. Flake, greyish-white chert, worked.

2209. Flake, banded yellowish-grey chert, worked.

2210. Flake, mottled grey and red chert, worked.

2211. Flake, mottled grey chert, worked.

2212. Flake, dirty white chert.

2213. Flake, translucent agate.

2214. Missing.

2215. Flake, dark grey chert, worked.

2216. Flake, fawn chert, worked.

2217. Flake, variegated pink, worked.

2218. Not an implement.

2219. Flake, drab chert.

2220. Flake, stone grey chert.

2221. Flake, variegated grey chert.

2222. Flake, dirty white chert.

2223. Flake, dark grey chert.

2224. Flake, dark grey chert.

2225. Flake, dark grey chert, worked edge.

2226. Flake, reddish-brown and dirty white chert.

2227. Flake, mottled reddish-grey chert.

2228. Flake, dirty white chert.

2229. Missing.

2230. Flake, agate, worked. Pl. VIII, Fig. 54. This and the following up to No. 2274, are narrow, elongated flakes.

2231. Flake, dirty white chert, worked.

2232. Flake, translucent agate, worked.

2233. Flake, mottled grey chert, worked.

2234. Flake, mottled grey chert, worked.

2235. Flake, mottled grey chert, worked. Pl. VIII, Fig. 55.

2236. Flake, black chert, broad type.

2237. Flake, translucent agate.

2238. Flake, translucent agate, worked.

2239. Flake, dirty grey chert.

2240. Flake, grey translucent chert.

2241. Flake, translucent agate, worked.

2242. Flake, translucent agate, worked.

2243. Flake, dirty grey chert, worked.

2244. Flake, translucent agate, worked.

2245. Flake, dirty grey chert, worked.

2246. Flake, dirty grey chert, worked.

2247. Flake, dirty grey chert, worked.

2248. Flake, translucent agate, worked. Pl. VIII, Fig. 50.

2249. Flake, dirty grey chert, worked.

2250. Flake, translucent agate, worked.

2251. Flake, translucent agate, worked. Pl. VIII, Fig. 56.

2252. Flake, translucent agate, worked.

2253. Flake, dirty grey chert, worked.

2254. Flake, light grey chert, worked.

2255. Flake, dark grey chert, worked.

2256. Flake, dirty white chert, worked.

2257. Flake, dirty white chert, worked.

2258. Flake, dirty white chert, worked.

2259. Missing.

2260. Flake, yellowish-fawn chert, worked.

2261. Flake, translucent agate, worked.

2262. Flake, translucent agate, worked. Pl. VIII, Fig 57.

2263. Missing.

2264. Flake, reddish-grey chert, worked.

2265. Flake, dirty grey chert, worked.

2266. Flake, dirty grey chert, worked.

2267. Flake, dirty grey chert, worked.

2268. Flake, dirty grey chert, worked.

2269. Flake, translucent, speckled chert, worked.

2270. Flake, dirty white chert, worked. Pl. VIII, Fig. 53.

2271. Flake, dark speckled grey chert, worked.

2272. Flake, dark grey chert, worked.

2273. Flake, dirty grey chert, worked.

2274. Flake, translucent agate, worked. Pl. VIII, Fig. 51.

2275. Missing.

2276. Flake, dark mottled grey chert, worked. Pl. VIII, Fig. 52.

2277. Flake, dark mottled grey chert, worked.

2278. Flake, dark mottled grey chert, worked.

2279. Flake, dark mottled grey chert, worked.

2280. Crescentic pygmy flakes, fourteen specimens in agate and chert. Pl. VIII, Figs. 15-27.

5969. Celt, medium, slightly rounded butt, worn edge; weathered trap.

Specimens 5969-6044 are from the Banda district and were presented by Sir Henry W. Seton-Karr in 1904.

5970. Celt, medium, broken butt, worn edge; fine polished trap.

5971. Celt, medium, partly chipped and smoothed, broken butt; fine trap.

5972. Missing.

5973. Celt, small, partly chipped and smoothed, crescentic edge, truncated butt; fine trap.

5974. Celt, small, broad pointed butt, sharp edge, part of one side missing; fine trap.

5975. Celt, medium, smooth rounded butt, corner missing; trap.

5976. Celt, medium, chipped, edge smoothed, sharp sides and butt, corner missing; fine trap.

5977. Celt, medium, crescentic edge, broken, rounded truncated butt, trap?

5978. Celt, medium, partly chipped and smoothed, sharp edge and butt; trap.

5979. Missing.

5980. Celt, medium, misshapen, partly chipped and smoothed, flat sides, truncated butt; fine trap.

5981. Hammerstone, broken, with deep depressions in each face, worn pointed end; reddish quartzite.

5982. Celt, large, partly chipped and smoothed, edge worn, truncated butt; fine trap. Pl. VII, Fig. 8.

5983. Celt, medium, small rounded butt, very weathered; trap.

5984. Celt, medium, elongated, small rounded butt, sharp edge; trap?.

5985. Celt, medium, elongated, small rounded butt, broken edge; trap?.

5986. Celt, medium, truncated butt, corner broken, weathered; trap.

5987. Celt, medium, elongated, curved, broken butt, weathered; trap.

5988. Celt, small, squat, broad truncated butt, very broad edge, broken corner; trap.

5989. Celt, small, smoothed, bears marks of chipping, butt and part of sharp edge broken; trap.

5990. Celt, truncated butt, edge partly broken, very weathered; trap.

5991. Hammerstone, polished, prismatic, worn flattened ends, each side has a double hemispherical indentation; light brown quartzite.

5992. Celt, small, pointed butt, broken edge; weathered trap.

5993. Celt, small, broad truncated butt, broad worn edge, weathered; trap.

5994. Celt, medium, polished faces and chipped sides, truncated butt, worn crescentic edge; fine trap.

5995. Celt, medium, misshapen, small flattened butt, broken edge; trap.

5996. Celt, medium, small rounded butt, one face broken; weathered trap.

5997. Celt, large, chipped and smoothed, broken, sharp butt; trap.

5998. Celt, elongated, small rounded butt, broken edge; weathered trap.

5999. Hammerstone, roughly prismatic, worn, with circular depressions in the sides.

6000. Celt, small, small flattened butt, broken edge; weathered trap.

6001. Celt, small, broad truncated butt, corners of edges ground off; weathered trap.

6002. Celt, small, chipped sides, truncated butt, worn edge; trap.

6003. Celt, large, misshapen, chipped edge; polished trap.

6004. Celt, medium, misshapen, truncated butt, part of edge and face missing; fine trap.

6005. Celt, large, elongated, broken butt and edge; trap.

6006. Missing.

6007. Celt, medium, misshapen; broken trap.

6008. Hammestone, oval, thick, worn; sandstone.

6009. Celt, large, smoothed, worn polished edge, broken butt, chipped sides; trap.

6010. Celt, large, misshapen, broken; weathered trap.

6011. Celt, small, small rounded butt, edge slightly worn; trap.

6012. Celt, medium, misshapen, smoothed corners, chipped side, smoothed truncated butt; trap.

6013. Celt, medium, pointed butt, one corner missing; trap.

6014. Celt, medium, upper part missing, worn edge; trap.

6015. Celt, large, chipped sides meeting in smoothed butt; trap. Pl. VI, Fig. 4.

6016. Celt, large, chipped sides, broken butt, worn edge; trap.

6017. Celt, medium, broken butt, worn edge, weathered; coarse trap.

6018. Celt, large, broad, chipped sides, small smoothed butt, chipped and smoothed, edge worn and broken; trap.

6019. Celt, medium, smooth, truncated butt, sharp edge; weathered trap.

6020. Probably not an implement.

6021. Celt, medium, truncated butt, broken edge; trap.

6022. Celt, medium, broad truncated butt, crescentic edge, worn, chipped on sides and upper parts of both faces; trap.

6023. Celt, medium, elongated, chipped sides, broken edge; trap.

6024. Hammerstone, fashioned from a small boulder, both sides smoothed and worn; four lots of indentations on sides, one pair double, one pair single; hard reddish quartzite.

6025. Celt, large, chipped and smoothed, chipped sides, truncated butt, broken edge; trap.

6026. Hammerstone, large, prismatic, both ends worn; eight circular indentations arranged in pairs around sides; reddish-grey quartzite.

6027. Celt, medium, truncated butt; thin, very weathered trap.

6028. Celt, large, elongated, small rounded butt, worn edge, broken face; trap.

6029. Celt, medium, small pointed butt, chipped and smoothed; trap.

6030. Missing.

6031. Celt, medium, edge polished, rest chipped, sharp edges; fine trap.

6032. Celt, large, chipped and partly smoothed, sharp edges; fine trap.

6033. Missing.

6034. Hammerstone, prismatic, ends worn; a pair of circular depressions in three faces, one in the other; polished brownish quartzite. Pl. VI, Fig. 15.

6035. Celt, smoothed, sharp edge, flat sides, truncated butt, broken; fine trap. Pl. VII, Fig. 9.

6036. Hammerstone, grooved sides, a pair of elongated indentations in each face, worn ends; hard reddish-grey sandstone.

6037. Celt, large, chipped and smoothed, sharp sides, truncated butt, worn edge; fine trap.

6038. Celt, medium, small rounded butt, worn edge; weathered trap.

6039. Hammerstone, elongated, four pairs of double depressions for holding; coarse sandstone.

6040. Celt, chipped and smoothed, broken edge; fine trap.

6041. Celt, chipped and smoothed, broken crescentic edge, sharp sides, small truncated butt; fine trap. Pl. VI, Fig. 11.

6042. Celt, medium, small flattened butt, worn edge; weathered trap.

6043. Celt, small, irregular, worn; trap ?.

6043a. Celt, small, rude, small flattened butt; trap.

6044. Hammerstone, with depressions and groove for holding, both ends worn; reddish quartzite.

In the course of his recent excavations on the famous site of Bhita near Allahabad, United Provinces, Sir John Marshall, Director-General of Archæology in India, discovered several neolithic implements. He has kindly furnished me with the following note on them.

"A singularly interesting problem is presented by the discovery in this house of Nagadeva, as well as in several other buildings on the site, of a number of celts and other neolithic implements of slate, sandstone and diabase. They were found in the Kushana (2nd Century A. D.) and Early and Late Mediaeval strata, and there can be no mistake as to the

periods to which they belong. How, then, is their presence to be accounted for? I think that the most reasonable explanation is that, after being sacked and desolated by enemies, the town was on several occasions occupied by neighbouring jungle tribes, who were still in the neolithic state of culture, and who left these implements behind them. Another possible explanation is that stone implements were still being used for sacrificial or other religious purposes by people who had emerged centuries before from the neolithic state; but this is less likely in view of the variety of the implements, which, if due to artificial conservatism, would reasonably be expected to be of a more or less uniform type. Whatever may be the true explanation, we have here conclusive proof that neolithic implements were in use in India until mediaeval times." [1]

With two exceptions the implements are all of common neolithic types. The exceptions are the two curious sandstone objects which Sir John Marshall thinks may have been used as wood-splitters. I have never seen, nor have I ever found a reference in literature, to neolithic artifacts of this type, and I have to confess that I do not know to what purpose they were actually put. While it is quite probable that the inhabitants of Bhita in the Khusana period lived surrounded by numerous tribes, who at that time were using stone implements, and who left their weapons on the site of the city after its fall, I am inclined to think that Sir John Marshall's second suggestion is more likely to be correct. This is that the stone implements were used for sacrificial or other religious purposes by people who themselves had emerged centuries before from the neolithic state. Sir John Marshall draws attention to examples of such conservatism among the ancient Egyptians, Mexicans, Hebrews and Romans. To these might be added the Chinese also.

Many of the most beautiful stone implements which have up to the present been obtained in China are mortuary finds from graves of the Chou dynasty (B. C. 1122-249). * Such implements are not only "contemporaneous with the Chinese bronze age, but also from an epoch when the bronze age after an existence of several millenniums was soon nearing its end and iron gradually began to make its way; *i.e.*, from an archæological viewpoint, they are recent products". (See: Laufer, *Field Museum of Nat. Hist., Pub. 24., Anthr. Ser.*, Vol. X, p. 72). Such implements were

[1] See *Annual Report of the Archaeological Survey of India*, Pt. II, 1911-12, pp. 35 and 89.

* The burial of jade implements was much practised during the historical period of the Chou dynastly and continued down to the epoch of the two Han dynasties (B. C. 206—A. D. 221) but this only shows that in these early days a pronounced symbolical cult had gathered around such objects, which were then regarded in all probability as the relics of a forgotten past.

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certainly of a ritualistic character, and there is good reason to believe that when their true nature, or the origin of their prototypes had been lost sight of, they were regarded as emblems of the solar deity, and as such shared in the quality of sun-light to dispel darkness and demons, and were efficient weapons in warding off from the dead all evil and demoniacal influences. (Laufer.) It might be argued that the Bhita finds are actual implements and not ornate copies of them, such as might be anticipated, if they were used for ritualistic and ceremonial purposes. Sir John Marshall has indeed anticipated this criticism, which I believe is sufficiently negatived by the following example. Even at the present day the Yunnanese Chinese attribute a celestial origin to neolithic stone implements which they plough up in their fields, and there are few villages in which several specimens are not kept, either in the local temple or in the ancestral shrines of some of the inhabitants. The implements are believed to possess occult medicinal properties, and to be efficacious in the treatment of disease. In some districts I have noticed that stone implements are occasionally placed before the image of the god of thunder in the temple devoted to his worship, by sick people. (See: J. Coggin Brown: "Stone Implements from the Teng-yueh District, Yunnan Province, Western China, with a short account of the beliefs of the Yunnanese regarding these objects." *Journ. Asiatic Soc. Bengal, New Ser.*, Vol. V, No. 8, 1909, pp. 299-305).* A full treatment of this fascinating subject is to be found in a work by C. Blinkenberg, "The Thunder Weapon in Religion and Folklore." Cambridge Anthropological Series, 1913.

Descriptions of the Bhita specimens.

1. Celt, triangular, sharp straight edge, rounded sides, truncated butt; coarse trap. Kushana date.
2. Implement of smoothed sandstone. A sharp crescentic edge meets two flattened sides prolonged eccentrically. Woodsplitter? Kushana date.
3. Celt, badly formed, straight cutting edge, flat sides, truncated butt, edge broken; diabase. Kushana date?
4. Celt, small, straight edge, worn, rounded sides taper rapidly to a small butt, weathered; coarse diabase. A common Indian form. Kushana or Gupta.
5. Celt, flat, elongated, straight edge and butt, almost parallel sides, thin; greenish-grey slate, damaged. Gupta date.

* The relations between these celts and the mortuary finds of the Chou dynasty are dealt with in a paper entitled "Further descriptions of stone implements from Yunnan" now under publication by the Asiatic Society of Bengal.

6. Similar to 2. In stratum of about 6th Century A. D.

7. Celt, small, slightly curved edge well bevelled off into the faces, sides rounded, tapers gently to a straight butt; greenish grey trap. Found in stratum of 8th or 9th century A. D.

8. Celt, large, thin crescentic edge, very worn, rounded sides taper into a broad truncated butt; coarse greenish-grey trap. Found in stratum of 8th or 9th Century A. D.

152. Celt, medium, chipped and smoothed, pointed butt, sharp sides, straight sharp edge. Collected by W. L. Wilson of the Geological Survey of India at Buhuterai, Damoh district.

153. Celt, medium, very weathered; limestone, Damoh. W.L.W.

154. Missing.

155. Celt, chipped and pecked; trap. Damoh. W. L. W.

156. Celt, large, chipped and smoothed, broken. Damoh. W .L. W.

159. Celt, large, chipped and smoothed; very weathered trap. Damoh. W. L. W.

160. Celt, medium, chipped and pecked, point broken; Damoh. W. L. W.

174. Celt, medium, sharp crescentic edge, polished, bleached surface; trap? Sihora, Jubbulpore district. Pl. VII, Fig. 7.

175. Celt, small, irregular, truncated butt, adze-like edge; trap?. Moonai, Jubbulpore district.

166. Celt, small, irregular, broad truncated butt, axe edge; trap? Near Jubbulpore. U. S. Carey.

177. Ringstone, broken and weathered; fine clay schist. Near Jubbulpore. U. S. Carey.

961. Ringstone on spindle whorl; fine clay schist. Jubbulpore.

Specimens 179-188, with the exception of 183 to which no locality is assigned in the register, consist of Neolithic cores and flakes from Jubbulpore. This locality is especially prolific in these remains, which are remarkable for the high proportion borne by the cores to the flakes that have been discovered. The specimens described below were the first of the exceedingly numerous collections which have since been made. They were found by Lieutenant Swiney, R.E., in 1865, who contributed a note on the subject to the Asiatic Society of Bengal. (*Proc., Asiatic Soc. Bengal*, 1865, pp. 77-80). In the following year W. T. Blandford exhibited a large series of agate cores and flakes on behalf of H. Rivett-Carnac, before the Asiatic Society of Bengal. (*Proc., Asiatic Soc. Bengal*, 1866, pp. 230-234.

Some of the specimens listed here are figured in this paper). According to Blandford, the collection can be divided into two classes, one of which exactly represents the flakes so frequently found associated with human remains of great antiquity in Europe; the other consisting of cores very similar to those from the Kjokkenmoddings of Denmark. The flakes are, for the most part, similar in form to those found in Europe. Some are pointed, others blunted at the end, and it is probable that the former may have been designed for piercing and the latter for cutting. Besides the lengthened oblong flakes, there are others of much broader form. The cores are of two principal forms, subconical and subprismatic. Irregular blocks, from which flakes have been split, also occur in considerable numbers. Many of the cores are beautifully shaped, with regular and equal facets; quite often they are very small and less than an inch in length.

The material of which all these implements are formed is agate or jasper derived from the trap formation so extensively developed in central and western India. It is a perfectly homogeneous stone, very hard, and the edges of flakes split from it are extremely sharp. It is similar in mineral character and composition to the flint used by the early races of western Europe, and is of equally good quality.

179. Seven small cores, flaked; agate.

180. Eleven agate flakes.

181. Twenty-eight small flakes; agate and chert.

182. Sixteen small flakes, agate and jasper. Some are broadly pointed. Pl. VIII, Figs. 42-47.

183. Core, mottled green chert, small; 10 flakes.

184. Core, large; dark mottled jasper.

185. Flake, chipped; dark stone coloured jasper.

186. Flake, chipped; greenish-grey jasper.

187. Flake, chipped; dark crimson jasper.

188. Flake, large; translucent green quartzite.

Examples 1040-1070, are flakes collected at Burchenka village, 8 miles east of Katni, Jubbulpore District, by Mr. Wybrants G. Olpherts, and acquired by the Museum in 1882.

1040. Flake, large; pink jasper.

1041. Flake, large; pointed; grey agate.

1042. Flake, large, worked; grey chert.

1043. Flake, large; grey chert. Pl. VIII, Fig. 49.

1044. Missing.

1045. Flake; brownish chert.

1046. Flake, brownish chert. Pl. VIII, Fig. 40.

1047. Flake, worked; grey chert. Pl. VIII, Fig. 41.

1048. Flake, worked; grey chert. Pl. VIII, Fig. 48.

1049. Flake, worked; grey chert.

1050. Flake, worked; grey chert.

1051. Flake, worked; dark grey chert.

1052. Flake, worked; grey chert.

1053. Flake; grey chert.

1054. Flake, worked; grey chert.

1055. Flake, worked, pointed, small; grey chert.

1056. Flake, small, pointed; chert.

1057. Flake, pointed; brownish-red chert.

1058. Missing.

1059. Flake, small, pointed; grey chert.

1060. Flake, small, pointed; grey translucent chert.

1061. Scraper, small; grey chert.

1062. Flake, small, pointed; grey translucent chert.

1063. Flake, small, pointed; grey translucent chert.

1064. Flake, small, pointed; chert.

1065. Missing.

1066. Flake, small; translucent chert.

1067. Missing.

1068. Flake, small, thin; dark grey chert.

1069. Flake, small, thin; dark grey chert.

1070. Flake, small, thin; dark grey chert.

Specimens 1238-1693 were collected by Colonel R. E. Gates and Major Abbot in the neighbourhood of Jubbulpore.

1238. Core, agate. Flakes 5.

1238*b*. Core, chert, greenish-grey. Fl. 7.

1239. Core, agate, milky. Fl. 5.

1240. Core, chert, mottled chocolate. Fl. 4.

1241. Core, chert, dark veined. Fl. 5.

1242. Core, chert, mottled chocolate and drab. **Fl. 8.**

1243. Core, chert, mottled pink and grey. **Fl. 7.**

1244. Core, chert, variegated maroon and grey. **Fl. 5.**

1245. Core, chert, dark chocolate. Fl. 6.

1246. Core, chert, variegated brown and lavender. **Fl. 5.**

1247. Core, chert, dark steel-grey. Fl. 10.

1248. Core, chert, mottled yellow and brown. **Fl. 8.**

1249. Core, agate, translucent. **Fl. 4.**

1250. Core, chert, drab.

1251. Core, chert, dark claret. Fl. 7.

1252. Core, chert, stone. **Fl. 5.**

1253. Core, chert, slate and tan. **Fl. 5.**

1254. Core, chert, greyish-green. **Fl. 5.**

1255. Core, chert, fawn. **Fl. 3.**

1256. Core, chert, yellow ochre and reddish. **Fl. 16.**

1257. Core, chert, fawn. Fl. 5.

1258. Core, chert, reddish-brown. Fl. 6.

1259. Core, agate, pinkish and milky white. Fl. 6.

1260. Core, agate, translucent milky white.

1261. Core, agate, translucent milky white.

1262. Core, chert, opaque white. **Fl. 5.**

1263. Core, chert, spotted pinkish-white. **Fl. 5.**

1264. Missing.

1265. Core, agate, mottled greyish-white. **Fl. 8.**

1266. Core, agate, milky white. **Fl. 5.**

1267. Core, chert, spotted brown and white. **Fl. 9.**

1268. Core, chert, yellow ochre. **Fl. 11.**

1269. Missing.

1270. Core, chert, dark chocolate. **Fl. 12.**

1271. Core, chert, greenish-grey and brown, Fl. 2.

1272. Core, chert, dark chocolate brown. Fl. 3.

1273. Missing.

1274. Core, chert, stone grey. Fl. 8.

1275. Core, chert, variegated chocolate and grey. **Fl. 6 double.**

1276. Core, chert, dark sienna. **Fl. 8.**

1277. Core, chert, variegated yellowish and grey. Fl. 6.

1278. Core, chert, dark reddish-brown. Fl. 5 double. Pl. VIII, Fig. 5.

1279. Core, chert, mottled brick red and grey. Fl. 13 double.

1280. Core, chert, mole grey. Flakes 10.

1281. Core, chert, variegated brown and green. Fl. 7.

1282. Missing.

1283. Core, chert, dark reddish-brown. Fl. 8 double.

1284. Core, chert, streaked terracotta. Fl. 11.

1285. Core, chert, brown and dull peacock blue. Fl. 6 double.

1286. Core, chert, dark greyish-brown. Fl. 12.

1287. Core, chert, mottled reddish and dark reddish-brown. Fl. 8 double.

1288. Missing.

1289. Core, chert, green and brown. Fl. 13 treble.

1290. Missing.

1291. Core, chert, dark steel-grey. Fl. 6.

1292. Core, chert, dark steel-grey. Fl. 13 doublo.

1293. Core, chert, brick red. Fl. 6 double.

1294. Core, chert, burnt sienna. Fl. 13 double.

1295. Core, chert, steel-grey. Fl. 10.

1296. Core, chert, variegated bluish-grey. Fl. 11. Pl. VIII, Fig. 7.

1297. Core, chert, dark sepia. Fl. 12.

1298. Core, chert, shaded terracotta. Fl. 11 double.

1299. Core, chert, dove grey. Fl. 6 double.

1300. Core, chert, dull chocolate. Fl. 12.

1301. Core, chert, buff with greenish bands. Fl. 4.

1302. Core, chert, dull chocolate stained. Fl. 6.

1303. Core, chert, dark slate. Fl. 11.

1304. Core, chert, light maroon spotted pink. Fl. 7 double.

1305. Core, chert, dull maroon. Fl. 9 double.

1306. Core, chert, mottled reddish-brown. Fl. 6 double.

1307. Core, chert, dull crimson. Fl. 8 double.

1308. Missing.

1309. Core, chert, translucent grey. Fl. 12.

1310. Core, chert, ocherous yellow. Fl. 7.

1311. Core, chert, banded violet, white and reddish-brown. Fl. 4.

1312. Core, chert, mottled chocolate and grey. Fl. 6.

1313. Core, chert, dirty green. Fl. 8.

1314. Core, chert, dirty green. Fl. 6.

1315. Missing.

1316. Missing.

1317. Core, chert, mottled pinkish, translucent. Fl. 7.

1318. Core, chert, mottled chocolate. Fl. 10 double.

1319. Core, chert, variegated reddish-grey. Fl. 8.

1320. Core, chert, streaked grey and yellow ochre. Fl. 9.

1321. Core, chert, dull flesh coloured. Fl. 8.

1322. Core, chert, light greenish-grey. Fl. 7.

1323. Missing.

1324. Core, chert, light greenish-grey with brownish patch. Fl. 6.

1325. Core, chert, mottled brownish-grey. Fl. 7.

1326. Core, chert, waxy grey mottled brown. Fl. 5.

1327. Core, chert, dirty yellowish-brown. Fl. 7.

1328. Core, chert, mottled greenish-grey. Fl. 11. Pl. VIII, Fig. 3.

1329. Core, agate, translucent orange grey. Fl. 5.

1330. Missing.

1331. Core, agate, translucent white and orange grey.

1332. Core, opal, translucent milk white. Fl. 5.

1333. Core, opal, streaked grey and brown. Fl. 6.

1334. Core, chert, light dirty brown. Fl. 6.

1335. Core, opal, translucent grey. Fl. 9.

1336. Missing.

1337. Core, chert, light dull mottled grey. Fl. 7.

1338. Core, chert, dark green and chocolate. Fl. 6.

1339. Core, chert, dark green. Fl. 8 double.

1340. Core, chert, chocolate. Fl. 9 double.

1341. Core, chert, dirty dark green. Fl. 4 double.

1341*b*. Core, chert, greenish-black. Fl. 3.

1342. Core, chert, reddish-brown. Fl. 4.

1343. Core, chert, burnt sienna. Fl. 5.

1344. Core, chert, reddish-brown. Fl. 4 double.

1345. Core, chert, very dark green. Fl. 8.

1346. Core, chert, mottled purplish-brown. Fl. 11 double.

1347. Core, chert, dark reddish-brown. Fl. 10 double.

1348. Core, chert, mottled greenish-grey. Fl. 6 double.

1349. Core, chert, greyish-drab. Fl. 4.

1350. Missing.

1351. Core, chert, banded earthy red. Fl. 4.

1352. Core, chert, mottled greyish-blue and chocolate. Fl. 8 double.

1353. Core, chert, variegated greenish-grey. Fl. 7 double.

1354. Core, chert, mottled reddish and yellow ochre. Fl. 6.

1355. Core, chert, reddish-brown. Fl. 10.

1356. Core, chert, mottled reddish-brown and mauve. Fl. 10.

1357. Core, chert, greyish. Fl. 7 double.

1358. Core, chert, dark brown. Fl. 7 double.

1359. Core, chert, reddish-brown. Fl. 9 double.

1360. Core, chert, mottled yellowish-brown and reddish. Fl. 9.

1361. Core, chert, mottled brownish-mauve and white. Fl. 8 double.

1362. Core, chert, mottled yellowish-brown. Fl. 14 double.

1363. Core, chert, grey and bluish-grey. Fl. 5.

1364. Core, chert, reddish-brown and drab. Fl. 4.

1365. Core, chert, slate grey. Fl. 12.

1366. Core, chert, dark reddish-brown. Fl. 11.

1367. Core, chert, crimson and reddish-brown. Fl. 5.

1368. Core, chert, light reddish-brown. Fl. 6 double.

1369. Core, chert, mottled brown and greenish-grey. Fl. 14 double. Pl. VIII, Fig. 6.

1370. Core, chert, streaked greenish-grey. Fl. 11 double.

1371. Core, chert, variegated brownish and grey. Fl. 10 double.

1372. Core, chert, light reddish. Fl. 6.

1373. Missing.

1374. Core, chert, streaked reddish and grey shades. Fl. 7.

1375. Core, chert, dark greenish-grey. Fl. 5.

1376. Core, chert, variegated shades of reddish and grey. Fl. 4.

1377. Core, chert, mauve and grey. Fl. 11 double.

1378. Core, chert, spotted brownish and red. Fl. 8.

1379. Core, chert, variegated reddish-brown and grey. Fl. 11 double.

1380. Core, chert, variegated reddish-grey and drab. Fl. 7.

1381 Core, chert, striped purplish-grey. Fl. 4.

1382. Core, chert, dark purplish-grey with red. Fl. 5.

1383. Core, chert, striped brown and yellowish-brown with white. Fl. 9 double.

1384. Core, chert, greenish and greyish-brown shades. Fl. 6.

1385. Core, chert, striped slate grey and brownish shades. Fl. 4.

1386. Core, chert, variegated grey, red and bluish. Fl. 8.

1387. Core, chert, reddish-chocolate. Fl. 6.

1388. Core, agate, light red. Fl. 4.

1389. Core, chert, greenish-grey. Fl. 5.

1390. Core, chert, variegated brownish-red. Fl. 8.

1390*b*. Core, chert, streaked grey and brown. Fl. 11.

1391. Core, chert, mottled purple. Fl. 12.

1392. Core, chert, mottled lavendar and yellow. Fl. 13.

1393. Core, chert, mottled terracotta and maroon. Fl. 6.

1994. Core, chert, dark steel-grey. Fl. 11.

1395. Core, chert, brick red and green. Fl. 7.

1396. Core, chert, dark chocolate. Fl. 9.

1397. Core, chert, yellowish-brown. Fl. 10. Pl. VIII, Fig. 4.

1398. Core, chert, chocolate. Fl. 5.

1399. Missing.

1400. Core, chert, mottled brownish-grey. Fl. 1.

1401. Missing.

1402. Core, chert, chocolate. Fl. 6.

1403. Core, chert, chocolate and white. Fl. 3.

1404. Core, chert, veined chocolate and white. Fl. 8.

1405. Core, chert, banded bluish-grey. Fl. 8.

1406. Core, chert, variegated reddish-brown and white. Fl. 8.

1407. Core, chert, reddish-brown and buff. Fl. 10.

1408. Core, agate, translucent. Fl. 5 double.

1409. Core, chert, variegated shades of brown and red. Fl. 6.

1410. Core, agate, translucent. Fl. 8.

1411. Core, chert, light grey. Fl. 6.

1412. Core, agate, light grey, opaque. Fl. 9.

1413. Core, chert, grey. Fl. 8.

1414. Core, chert, variegated shades of pink and grey. Fl. 7 double.

1415. Core, chert, light brownish-grey. Fl. 11.

1416. Core, chert, mottled grey and reddish. Fl. 10.

1417. Missing.

1418. Core, banded agate, translucent. Fl. 9.

1419 Core, chert, milk white and mauve. Fl. 8.

1420. Core, chert, milk white and terracotta. Fl. 12.

1421. Core, agate, translucent. Fl. 9.

1422. Core, agate, translucent, opaque banded. Fl. 10.

1423. Core, agate, opaque, white stained yellow. Fl. 14.

1424. Core, agate, translucent, white banded. Fl. 7.

1425. Core, agate, translucent, white banded.

1426. Core, agate, translucent, white banded. Fl. 6.

1427. Core, agate, translucent, white banded. Fl. 6.

1428. Core, agate, translucent, white banded. Fl. 9.

1429. Core, chert, opaque white, red spotted. Fl. 17 double.

1430. Core, agate, translucent. Fl. 6.

1431. Core, agate, translucent. Fl. 8.

1432. Core, agate, translucent, banded. Fl. 7.

1433. Core, agate, translucent, banded. Fl. 12.

1434. Core, agate, translucent, banded. Fl. 6.

1435. Missing.

1436. Core, agate, opaque white banded. Fl. 12. Pl. VIII, Fig. 39.

1437. Core, agate, grep banded reddish-brown. Fl. 8.

1438. Core, chert, variegated dark grey and terracotta. Fl. 11 large.

1439. Core, chert, variegated dark grey and brown. Fl. 12. Pl. VIII, Fig. 2.

1440. Core, chert, variegated reddish-grey. Fl. 9 large.

1441. Core, chert, brick red. Fl. 5 double.

1442. Core, chert, maroon. Fl. 14 double.

1443. Core, chert, maroon.

1444. Core, chert, striped green and fawn. Fl 4.

1445. Core, chert, maroon. Fl. 9.

1446, Core, chert, brick red. Fl. 16.

1447. Core, chert, brick red. Fl. 13, double.

1448. Core, chert, greyish-green. Fl. 12.

1449. Core, chert, streaked grey, brown and red shades. Fl. 10.

1450. Core, chert, drab. Fl. 10.

1451. Core, chert, light crimson. Fl. 10.

1452. Core, chert, variegated dark purple and grey. Fl. 10.

1453. Core, chert, banded salmon pink and reddish-grey. Fl. 11.

1454. Core, chert, small, mottled yellow and brown. Fl. 7.

1455. Core, chert, small, variegated pink. Fl. 8.

1456. Core, chert, small, reddish-chocolate. Fl. 4.

1457. Core, agate, translucent. Fl. 12.

1457*b*. Core, chert, small, crimson. Fl. 8.

1458. Core, chert, small, mottled grey. Fl. 14.

1459. Core, agate, small, edged, translucent. Fl. 6.

1460. Missing.

1461. Core, chert, small, mottled yellowish-brown and red. Fl. 6.

1462. Core, chert, small, grey. Fl. 14.

1463. Core, chert, small, dark purple. Fl. 9. Pl. VIII, Fig. 38.

1464. Core, chert, small, dull green. Fl. 5.

1465. Core, chert, small, mottled brown and green. Fl. 4.

1466. Core, chert, small, chocolate. Fl. 4.

1467. Core, chert, small, opaque white. Fl. 4.

1468. Core, chert, small, streaked grey. Fl. 5.

1469. Core, chert, small, steel-grey. Fl. 8.

1470. Core, chert, small, striped reddish-grey. Fl. 17.

1471. Missing.

1472. Core, chert, small, greenish-brown. Fl. 6.

1473. Core, chert, small, dark grey. Fl. 3.

1474. Core, chert, small, crimson. Fl. 9.

1475. Missing.

1476. Core, chert, small, mottled chocolate. Fl. 6.

1477. Core, chert, small, ochreous yellow. Fl. 6.

1478. Core, chert, small, crimson. Fl. 8.

1479. Core, chert, small, streaked grey and red. Fl. 7.

1480. Core, chert, small, bleached reddish-grey. Fl. 6.

1481. Core, chert, small, variegated reddish-brown. Fl. 11.

1482. Core, agate. Fl. 8.

1483. Core, agate. Fl. 11.

1484. Core, chert, small, bleached dirty white. Fl. 13.

1485. Core, chert, small, mottled white and reddish-brown. Fl. 17.

1486. Core, agate, small, Fl. 4.

1487. Missing.

1488. Core, agate, small. Fl. 10.

1489. Core, agate, small, translucent. Fl. 7.

1490. Core, agate, small, translucent. Fl. 7.

1491. Missing.

1492. Core, chert, small, white and brownish. Fl. 12.

1493. Core, agate, small, opaque. Fl. 11.

1494. Core, agate, small, opaque. Fl. 10.

1495. Core, agate, translucent. Fl. 8.

1496. Core, agate, translucent. Fl. 6.

1497. Core, chert, steel-grey. Fl. 9.

1498. Core, agate, translucent. Fl. 9.

1499. Core, agate, translucent. Fl. 7.

1500. Core, agate, translucent. Fl. 5.

1501. Core, agate, translucent and banded. Fl. 6.

1502. Missing.

1503. Core, agate, translucent and banded. Fl. 9.

1504. Core, agate, opaque pinkish-white and banded. Fl. 13.

1505. Core, agate, opaque white and banded. Fl. 6.

1506. Core, agate, opaque greyish-white. Fl. 11.

1507. Core, agate, opaque greyish-white. Fl. 8.

1508. Core, chert, greyish-yellow stained. Fl. 12.

1509. Core, agate, translucent banded. Fl. 8.
1510. Core, agate, translucent banded. Fl. 5.
1511. Core, agate, translucent banded. Fl. 7.
1512. Core, chert, reddish streaked white. Fl. 10.
1513. Core, agate, translucent. Fl. 10.
1514. Core, agate, translucent and banded. Fl. 5.
1515. Core, chert, stained bluish-grey. Fl. 12.
1516. Core, agate, translucent banded. Fl. 9.
1517. Core, chert, banded fawn. Fl. 11.
1518. Core, agate, translucent. Fl. 5.
1519. Core, agate, translucent and banded. Fl. 8.
1520. Core, agate, opaque and banded. Fl. 7.
1521. Core, chert, fawn and grey banded. Fl. 13.
1522. Core, agate, milk white. Fl. 10.
1523. Core, chert, mottled white and reddish. Fl. 8.
1524. Core, agate, translucent banded. Fl. 8.
1525. Core, agate, translucent. Fl. 8.
1526. Core, agate, translucent banded. Fl. 10.
1527. Core, chert, greenish-grey and reddish banded. Fl. 9.
1528. Core, agate, translucent. Fl. 8.
1529. Core, agate, translucent and banded. Fl. 13.
1530. Core, agate, translucent. Fl. 7.
1531. Core, agate, translucent and banded. Fl. 8.
1532. Core, agate, translucent. Fl. 8.
1533. Core, agate, translucent and banded. Fl. 9.
1534. Core, chert, fawn and white. Fl. 10.
1535. Core, agate, translucent. Fl. 8.
1536. Core, chert, white streaked red. Fl. 10.
1537. Core, chert, white and dark red. Fl. 13.
1538. Core, chert, reddish-brown. Fl. 12, double, large.
1539. Core, chert, drab. Fl. 8, large.
1540. Core, chert, variegated shades of red and grey. Fl. 9.
1541. Missing.
1542. Core, chert, mottled greenish-grey and brown. Fl. 11.

1543. Core, chert, bluish-green. Fl. 6.
1544. Core, chert, dark reddish-brown. Fl. 6.
1545. Core, chert, variegated pink and grey. Fl. 13. Pl. VIII, Fig. 1.
1546. Core, chert, variegated olive and reddish-grey. Fl. 10.
1547. Core, chert, dark steel grey. Fl. 10.
1548. Missing.
1549. Core, chert, variegated grey and dirty white. Fl 8
1550. Core, chert, bluish-grey. Fl. 7.
1551. Core, chert, variegated greyish-green. Fl. 14
1552. Core, chert, dove grey. Fl. 11.
1553. Core, chert, reddish-brown. Fl. 7.
1554. Core, chert, dark chocolate. Fl. 6.
1555. Core, chert, streaked reddish. Fl. 10.
1556. Missing.
1557. Core, chert, streaked reddish. Fl. 10.
1558. Core, chert, drab. Fl. 15.
1559. Core, chert, opaque dirty white. Fl. 9.
1560. Core, chert, dirty white Fl. 5.
1561. Core, chert, salmon pink and yellowish-white. Fl. 6.
1562. Core, chert, opaque dirty white. Fl. 5.
1563. Core, chert, bluish-grey. Fl. 9.
1564. Core, chert, dirty light grey. Fl. 6.
1565. Core, agate, opaque white banded. Fl. 5.
1566. Core, chert, opaque white. Fl. 15.
1567. Core, agate, translucent. Fl. 13.
1568. Core, chert, dirty white. Fl. 9.
1569. Core, chert, bluish-grey and yellowish-white. Fl. 6.
1570. Core, chert, cream. Fl. 9.
1571. Chert flake.
1572. Chert flake, worked edges.
1573. Chert flake, worked edges.
1574. Chert flake, worked edges.
1575. Chert flake, worked edges.
1576. Missing.

1577. Chert flake, worked edges.
1578. Chert flake, worked edges.
1579. Chert flake, worked edges.
1580. Chert flake, worked edges.
1581. Chert flake, worked edges.
1582. Chert flake, worked edges, small.
1583. Chert flake, worked edges, small.
1583*b*. Chert flake, worked edges, small.
1584. Chert flake, worked edges, small.
1585. Chert flake, worked edges.
1586. Chert flake, worked edges.
1587. Chert flake, worked edges.
1588. Chert flake, worked edges.
1589. Chert flake, worked edges.
1590. Chert flake, worked edges.
1591. Chert flake, worked edges.
1592. Agate flake, worked edges.
1593. Agate flake, worked edges.
1594. Chert flake, worked edges.
1595. Chert flake, worked edges.
1596. Chert flake, worked edges.
1597. Chert flake, worked edges.
1598. Missing.
1599. Chert flake, worked edges.
1600. Pygmy chert flake, worked.
1601. Pygmy chert flake, worked.
1602. Pygmy chert flake, worked.
1603. Pygmy chert flake, worked.
1604. Pygmy chert flake, worked.
1605. Pygmy chert flake, worked.
1606. Pygmy chert flake, worked.
1607. Pygmy chert flake, worked.
1608. Pygmy chert flake, worked.
1609. Pygmy chert flak, worked.

1610. Pygmy chert flake, worked.
1611. Pygmy chert flake, worked. Pl. VIII, Fig. 31.
1612. Pygmy chert flake, worked.
1613. Pygmy chert flake, worked.
1614. Missing.
1615. Missing.
1616. Pygmy chert flake, worked.
1617. Pygmy chert flake, worked. Pl. VIII. Fig. 30.
1618. Pygmy chert flake, worked.
1619. Pygmy chert flake, worked. Pl. VIII, Fig. 37.
1620. Pygmy chert flake, worked.
1621. Pygmy chert flake, worked.
1622. Pygmy chert flake, worked.
1623. Pygmy chert flake, worked. Pl. VIII, Fig. 32.
1624. Missing.
1625. Pygmy chert flake, worked. Pl. VIII, Fig. 35.
1626. Pygmy chert flake, worked.
1627. Pygmy chert flake, worked.
1628. Pygmy chert flake, worked.
1629. Pygmy chert flake, worked. Pl. VIII, Fig. 36.
1630. Pygmy chert flake, worked.
1631. Pygmy chert flake, worked.
1632. Pygmy chert flake, worked.
1633. Missing.
1634. Missing.
1635. Pygmy chert flake, worked.
1636. Pygmy chert flake, worked.
1637. Pygmy chert flake, worked. Pl. VIII, Fig. 33.
1638. Pygmy chert flake, worked. Pl. VIII, Fig. 34.
1639. Pygmy chert flake, worked.
1640. Missing.
1641. Agate flake, large.
1642. Chert flake, large, pointed, grey.
1643. Chert flake, large, worked, grey.

1644. Chert flake, large, worked, grey.
1645. Core, agate, translucent. Pl. 8.
1646. Chert flake, worked, greyish-brown.
1647. Agate flake, worked, large.
1648. Chert flake, worked, grey and white.
1649. Chert flake, worked, grey and white.
1650. Agate flake, worked, greyish-white.
1651. Agate flake, worked, greyish-white.
1652. Agate flake, worked, greyish-white, pointed.
1653. Chert flake, worked, dead white.
1654. Agate flake, worked, greyish-white.
1655. Chert flake, worked, greyish-white.
1656. Agate flake, worked, white.
1657. Chert flake, greyish-brown, worked.
1658. Agate flake, translucent, worked.
1659. Chert flake worked, white.
1660. Chert flake.
1661. Agate flake, clear.
1662. Small piece of orpiment.
1663. Agate flake, small.
1664. Agate flake, small.
1665. Agate flake, small.
1666. Agate flake, small
1667. Agate flake, small.
1668. Missing.
1669. Agate flake, small.
1670. Agate flake, small.
1671. Agate flake, small.
1672. Agate flake, small.
1673. Agate flake, small.
1674. Agate flake, small.
1675. Agate flake, small.
1676. Agate flake, small, pointed.
1677. Agate flake, small.

1678. Missing.

1679. Missing.

1680. Agate flake, small.

1681. Agate flake, small.

1682. Agate flake, small.

1683. Missing.

1684. Agate flake, small.

1685. Agate flake, small.

1686. Agate flake, small.

1687. Agate flake, pygmy.

1688. Chert flake, small.

1689. Chert flake, pygmy.

1690. Chert flake, pygmy.

1690 *b*. Chert flake, large.

1691. Agate flake, pygmy.

1692. Agate flake pygmy.

1693. Agate flake, pygmy.

The following are odd Neolithic remains from the Central Provinces.

1202. Hammerstone, rounded butt, one face cut flat; sandstone. Bone mound, near Arjuni, Nandgaon feudatory State, Raipur district.

1203. Broken piece of stone cylinder. Same locality as 1202.

5626. Perforated hammerstone; spotted ferruginous sandstone. 2 miles south-east of Rampur-Madanpur, Central Provinces. E. Long. 83°37′; N. Lat. 20° 11′. T. L. Walker, G. S. I.

178. Core, chert, 12 flakes. Nerbudda valley, G.S.I.

INDUS VALLEY.

Theobald's celt, No. 814, is interesting as being the first specimen of its kind to be discovered in the Punjab. Chips and scrapers and certain specimens of those remarkably fine cores for which the Indus valley is famous, had been obtained before this time in Sind, but no larger objects. It was picked up on February 21st, 1879. (See: *Rec. Geol. Surv. India*, Vol. XIII. p. 176).

In Sind, on the hills near Sukkur and Rohri, immense quantities of imperfect flakes and cores are found made from the flint which abounds in the nummulitic limestone. Many of the cores are 3 to 4 inches long. Some smaller but very perfectly and regularly shaped cores of the same material have also been found in the bed of the Indus at Sukkur. (See: *Manual of the Geology of India*, Pt. 1, page 442). The early finds from the bed of the river have been described by Sir John Evans, (*Geol. Mag.* 1866, pp. 433-434, with plates), while later examples are recorded by W. T. Blanford, who writes :— "There can be little doubt about the late age of these cores. They are by far the most carefully formed of any hitherto found in India, and are so far superior to all ordinary forms made of the same material, that, as was pointed out by Mr. Evans in the Geological Magazine, they rather resemble those of obsidian which are found in Mexico and in some other places. Mr. Fedden noticed a peculiarity in many of the cores, which I do not recollect having seen before; this is that several of them, at the base, present the appearance of a flat surface ground by artificial means. The material is in all cases nummulitic flint.

"I am much disposed to believe that the cores found in the Indus were made by a different people from those who chipped their flakes on the hills around. This may be due to the more civilized flake-makers having established themselves on the river bank, while their less expert contemporaries roamed among the neighbouring hills or visited them for the purpose of obtaining a stock of cutting implements; or the former may have lived later, when the art of flint chipping had been brought to greater perfection. There is a possibility that the best flints were selected and carried home to the dwellings on the bank of the river, in order that cutting flakes might be obtained from them by pressure, while less perfect materials were utilized and thrown away at once. However it may have happened, it is certain that all the specimens I have yet seen from the river bed are singularly well formed, shewing as a rule no trace of a flaw, and although an occasional well shaped core may be found on the hills, the majority are broken or imperfect." (*Journ., Asiatic Soc. Bengal*, 1875, pp. 135-136).

83. Core, mottled grey chert, small; 10 flakes. Indus valley?

813. Ring-stone, broken; polished diorite. South of Jhelum.

814. Celt, medium, pointed butt, rounded edge; weathered limestone. Banks of the Indus opposite Shadipur, 21 miles south-west of Attock. Found in may 1880 by W. Theobald G.S.I. See *Rec., Geol. Surv. Ind.* Vol. XIII, p. 176. Pl. VII, Fig. 10.

816. Scraper, large, worked flint. From the surface at Shirak, Lower Sind. F. Fedden, G.S.I., 1876.

817. Core, small, 12 flakes; flint. From the bed of the Indus at Sukkur, Sind. This and the following two specimen, which are from the same locality, are described in the *Manual of the Geology of India*, p. 442, and are figured in Pt. 2, Pl. XXI.

818. Core, large, 13 flakes; flint. Pl. IX, Fig. 11.

819. Core, large, 12 flakes; flint. Pl. IX, Fig. 18.

820. Core, large, 11 flakes; flint. Pl. IX, Fig. 15. This and the following specimens to 864 are from Rohri, Sind.

821. Core, large, 8 flakes; flint.

822. Missing.

823. Missing.

824. Core, large, 15 flakes; flint.

825. Core, large, 10 flakes; flint.

826. Core, short, 10 flakes; flint.

827. Worked flint, flaked edge.

828. Core, large, broken, 14 flakes; flint.

829. Core, broken 15 flakes; flint.

830. Core, short, 13 flakes; flint.

831. Core, broken, 14 flakes; flint.

832. Core, broken, 7 flakes; flint.

833. Missing.

834. Core, small, 16 flakes; flint.

835. Core, small, 15 flakes; flint.

836. Core, large, broken, 15 flakes; flint.

837. Core, broken, 14 flakes.

838. Core, small, 8 flakes; flint.

839. Core, broken 14 flakes; flint.

840. Core, small, 9 flakes; flint.

841. Core, small, 8 flakes; flint.

842. Core, small, 18 flakes; flint.

843. Core, small, 12 flakes; flint.

844. Core, small. 15 flakes; flint.

845. Missing.

846. Core, medium, 13 flakes; flint.

847. Flake, worked edges, broken; flint.

848. Missing.

849. Flake, chipped, small; flint.

850. Piece of flint core, worked edges.

851. Broken piece of flint core.

852. Broken piece of flint core.

853. Piece of core, worked edge.

854. Flake; flint.

855. Worked piece of core.

856. Broken piece of core.

857. Flake; flint.

858. Missing.

859. Core, small, 13 flakes; flint.

860. Missing.

861. Core, small, 17 flakes; flint.

862. Core, small, 13 flakes; flint.

863. Core, small, 12 flakes; flint.

864. Missing.

BALUCHISTAN.

3246. Large ringstone; siliceous limestone. Miri, Quetta. Pl. VII, Fig. 6.

3257. Rounded ball with a flattened segment; reddish jasper.

BENGAL, BIHAR AND ORISSA.

The most important series of prehistoric remains from these two provinces was discovered in 1887 on the site of an old Neolithic settlement near Ranchi by Mr. W. H. P. Driver. In this catalogue they bear the numbers 3149-3234 and 3258-3374. Mr. Driver's first collection was described and figured by J. Wood-Mason. (*Journ., Asiatic Soc., Bengal*, Vol. LVII, pp. 387-396). The Plate numbers quoted after the descriptions in the text below refer to this paper. Celts, ringstones, arrow-heads and pieces of red earthy hematite are all described by Wood-Mason,

who also promised a later account dealing with several more boxes of relics, which he received from Mr. Driver after the first paper was written. This does not appear to have been published before Wood-Mason's death, a few years later.

I have drawn attention to the occurrence of shouldered or spade-celts in the highlands of Bengal in the notes which precede the descriptions of the Burmese Neolithic implements.

3149. Polishing stone; greenish grey slate. Pl. 2.

3150. Polishing stone, small; reddish flinty jasper.

3151. Ringstone, broken; actinolite schist.

3152. Celt, small, broken, crescentic edge; black trap. Pl. 3, 1 & 1*a*.

3153. Flake; chert. Pl. 3, Figs 2 & 2*a*.

3154. Flake; chert. Pl. 4, Fig. 1.

3155. Flake; chert. Pl. 4, Fig. 2.

3156. Flake; chert. Pl. 4, Fig. 3.

3157. Scraper?; quartz. Pl. 4, Fig. 4.

3158. Leaf flake grey; chert. Pl. VIII, Fig. 14.

3159. Missing.

3160. Core, 8 flakes; brownish chert. Pl. 4, Fig. 7.

3161. Core, 11 flakes; chert. Pl. 4, Fig. 8.

3162. Flake; chert. Pl. 4, Fig. 9.

3163. Flake; chert. Pl. 4, Fig. 10.

3164. Missing.

3165. Missing.

3166. Scraper?; chert. Pl. 5, Figs. 3 & 3*a*.

3167. Flake, worked; transparent quartz. Pl. 5, Figs. 4 & 4*a*.

3168. Flake, worked; transparent quartz. Pl. 5, Fig. 5.

3169. Flake; chert. Pl. 5, Fig. 6.

3170. Flake, pointed; chert. Pl. 5, Fig. 7.

3171. Flake, pointed; chert. Pl. 5, Fig. 8.

3172. Flake, pointed; quartz. Pl. 5, Fig. 9.

3173. Flake, pointed; speckled white chert. Pl. 5, Fig. 11.

3174. Flake; slate coloured chert. Pl. 5, Fig. 12.

3175. Missing.

3176. Piece of earthy hematite rubbed and scraped.

3177. Piece of earthy hematite rubbed and scraped.

3178. Piece of earthy hematite rubbed and scraped.

3179. Flake, crescentic; grey chert. Pl. VIII, Fig. 28.

3180. Flake, crescentic; agate.

3181. Flake, crescentic; grey chert.

3182. Flake, crescentic; grey chert.

3183. Flake, worked, crescentic; grey chert.

3184. Flake, worked, crescentic; grey chert.

3185. Flake, worked, crescentic; white chert.

3186. Flake, worked, crescentic; grey chert.

3187. Flake, worked, crescentic, small; grey chert.

3188. Flake, worked, crescentic; grey chert.

3189. Flake, worked, crescentic; reddish-grey chert small.

3190. Flake, worked, crescentic small; dirty white chert. Pl. VIII, Fig. 29.

3191. Flake, worked, crescentic; yellowish-brown chert.

3192. Flake, worked, small; dark grey chert.

3193. Flake, worked, small; dark grey chert.

3194. Flake, worked, small; dark grey chert.

3195. Flake, worked; striped grey chert.

3196. Missing.

3197. Flake, small, worked; dark grey chert.

3198. Flake, small, worked; speckled white chert.

3199. Missing.

3200. Flake, worked; slate coloured chert.

3201. Missing.

3202. Flake; chert.

3203. Flake, worked; grey chert.

3204. Flake, worked; dark grey chert.

3205. Flake, worked; grey chert.

3206. Flake, worked; light brown chert.

3207. Flake, worked; translucent agate.

3208. Flake, worked, small; chert.

3209. Core, 3 flakes; slate coloured chert.

3210. Core, 12 flakes; slate coloured chert.

3211. Core, 6 ; slate coloured chert.

3212. Core, 9 flakes; slate red jasper.

3213. Missing.

3214. Missing.

3215. Missing.

3216. Quartz crystal, small, chipped.

3217. Small, chipped quartz crystal.

3218. Chipped rock crystal.

3219. Chipped rock crystal.

3220. Missing.

3221. Piece of red earthy hematite.

3222. Piece of red earthy hematite.

3223. Piece of red earthy hematite.

3224. Piece of red earthy hematite.

3225. Piece of red earthy hematite.

3226. Missing.

3227. Missing.

3228. Piece of red earthy hematite.

3229. Piece of red earthy hematite.

3230. Piece of red earthy hematite.

3231. Piece of red earthy hematite.

3232. Piece of red earthy hematite.

3233. Piece of red earthy hematite.

3234. Piece of red earthy hematite.

3258. Celt, large, chisel edge, flattened butt; greenish-grey indurated slate.

3259. Celt, small, crescentic edge; variegated schist.

3260. Celt, small, long; schist?

3261. Celt, small, polished, straight edge, beveled sides, broken butt; variegated schist.

3261. Celt, polished, broken straight edge; hornblende schist.

3262. Celt, large, polished, broken edge; trap?

3263. Celt, chipped and polished, straight edge and butt; hernstone?

3264. Celt, polished, broken crescentic edge; greenish grit.

3265. Polishing stone; actinolite schist.

3266. Celt, small, long, straight edge, flat sides; bleached trap.

3267. Celt, small, broad, straight edge, flat sides; slate.

3268. Celt, small, straight edge, small butt; hornstone.

3269. Missing.

3270. Celt, small, polished, straight edge, flat sides tapering to small butt; bleached trap.

3271. Celt, medium, straight edge, beveled sides; variegated schist.

3272. Celt, medium, crescentic edge, truncated butt; schist?

3273. Celt, medium, straight edge, flat sides; flat butt; schist.

3274. Celt, small, elongated, straight edge; basalt?

3275. Celt, small, polished beveled sides, broken edge; trap?

3276. Celt, polished, broad, worn crescentic edge; slate.

3277. Missing.

3278. Celt, medium, polished, straight edge, beveled sides, flat faces, rounded butt; sandstone.

3279. Missing.

3280. Celt, medium, polished, crescentic edge, beveled sides, truncated butt; hornstone.

3281. Celt, small, straight edge, flat sides and faces; slate.

3282. Missing.

3283. Grinder or mealing stone, circular top; hornblende schist.

3284. Not an implement.

3285. Missing.

3286. Missing.

3287. Irregular piece of polished stone; blackish indurated slate.

3288. Stone used for polishing and sharpening; hornblende schist.

3289. Stone used for polishing and sharpening; hornblende schist.

3290. Stone used for polishing and sharpening; hornblende schist.

3291. Celt?

3292. Discs with thick flat edges; quartzite. Pl. IX, Fig. 8.

3293. Discs with thick flat edges; gneiss.

3294. Discs with thick flat edges; quartz schist.

3295. Discs with thick flat edges; quartz schist.

3296. Discs with thick flat edges.

3297. Discs with thick flat edges.

3298. Hexagonal piece of rock crystal, ground.

3320. Core, 7 flakes; slatey-grey chert. Pl. VIII, Fig. 12.

3321. Core, 10 flakes; brownish-yellow chert.

3322. Core, 10 flakes, double; grey chert.

3323. Missing.

3324. Missing.

3325. Core, 5 flakes; grey chert.

3326. Core, 11 flakes; reddish jasper.

3327. Core, 11 flakes; reddish jasper.

3328. Missing.

3329. Celt, very elongated, upper part cylindrical, flattened butt, very weathered; trap.

3330. Celt, medium, crescentic edge, flat sides, straight butt; bleached sandstone.

3331. Celt, medium, straight edge, beveled sides; variegated schist?

3332. Celt, elongated, broken; variegated schist.

3333. Celt, medium, elongated, straight edge, flat sides, small butt, flat sides; trap?

3334. Celt, large, straight edge, beveled edges, tapers to rounded point; trap.

3335. Celt, medium, straight edge, thick; hornblende schist.

3336. Celt, small crescentic edge, worn, small butt; polished trap.

3337. Celt, medium, straight edge, beveled sides, small butt; variegated schist.

3338. Celt, small, straight edge, beveled sides tapering to pointed butt; variegated schist.

3339. Celt, small, elongated, crescentic edge, tapering sides; variegated schist.

3340. Celt, straight edge, flat sides; polished variegated schist.

3341. Missing.

3342. Celt, small, straight edge, thick; schist?

3343. Celt, small, straight edge, beveled sides, tapers to pointed butt; bleached hornstone.

3344. Celt broken; indurated slate.

3345. Celt, broken; straight edge, tapers to smoothed butt; flat sides; variegated schist. Pl. IX, Fig. 6.

3346. Identical with 3345.

3347. Celt, small, straight edge, beveled sides, tapers to small butt; schist?

3348. Celt, polished, straight edge, flat sides, tapers to truncated butt; indurated slate.

3349. Celt, polished, small, straight edge, worn, beveled sides, truncated butt; trap?

3350. Celt, medium, worn edge, broken sides, small butt; weathered trap.

3351. Celt small, polished, crescentic edge, flat sides; variegated schist.

3352. Missing.

3353. Celt, polished, crescentic edge, flat sides; variegated schist. Pl. IX, Fig. 7.

3354. Celt, large, polished, crescentic edge, broken; hornstone.

3355. Celt, polished, straight edge, broken; indurated slate.

3356. Celt?, worn edge, straight sides, broken.

3357. Missing.

3358. Celt, small, polished, straight edge, flat sides, tapers to pointed butt; variegated schist.

3359. Missing.

3360. Celt, small, polished, straight edge, tapers to pointed butt; variegated schist.

3361. Celt, small, polished, broad edge, tapers to truncated butt; variegated schist.

3362. Celt, small, polished, flat sides, straight edge; trap?

3363. Celt, small beveled sides, straight edge, tapers to pointed butt; variegated schist.

3364. Celt, small, beveled sides, straight edge; variegated schist.

3365. Celt, small, polished, straight edge, rounded sides, truncated butt; variegated schist.

3366. Celt, small, polished, straight edge, truncated butt; variegated schist.

3367. Celt, small, polished, straight edge, beveled sides, small butt; variegated schist.

3368. Celt, small, polished, triangular, straight edge, pointed butt; variegated schist.

3369. Celt, small, polished, crescentic edge; sandstone?

3370. Celt, small, polished, straight edge, truncated butt; trap?

3371. Hammerstone or pounder, small; hornblende schist.

3372. Polisher or sharpening stone, small.

3373. Polisher; hornblende schist.

3374. Polisher or sharpening stone, small.

3374. Mealing stone, rectangular, rounded ends.

6316. Celt, triangular, rounded sides, broken edge; polished trap? From a cave in Parasnath Hill. Pl. VII, Fig. 4.

The following specimens, 6317-6320, were found in the Hazaribagh district and were presented to the Museum in 1910 by Mr. Nobin Chandra Chakrabatti, District Engineer, Hazaribagh.

6317. Edge of broken celt; polished weathered slate?

6318. Celt, small, rounded sides and butt, sharp edge; polished limestone.

6319. Celt, small, rounded sides and butt; polished hornstone.

6320. Not an implement; weathered piece of schist.

47. Celt, straight edge, tapering butt, rounded sides; polished weathered limestone. Deogha, Dhadka, Barabhum, Manbhum. J. Deveria. Pl. VII, Fig. 1.

48. Celt, small, straight edge and butt; polished variegated schist. Same locality and donor.

50. Missing.

51. Nine flakes of dark chert. These chert flakes were found by Captain Beeching in 1868 at Chaibassa in the Singbhum district and also at Chuckerdherpore, 16 miles away. They were generally to be seen on or near the banks of the river, and attracted the eye at once by the striking difference they presented to the other stones lying near them. In point of manufacture they are inferior to those from the Jubbulpore district, as chert does not yield such sharp edges as the agates and flints of which the latter are made. See. *Proc., Asiatic Soc. Bengal*, 1868, p. 177. The localities were visited later by V. Ball, who obtained strong evidence of the human origin of the flakes. See *Proc., Asiatic Soc. Bengal*, 1870, p. 268. In the same place Ball mentions

another beautifully made celt which he obtained on the surface near the village of Buradih, south-east of Gomaria in Iamar, Chota Nagpur. These flakes, and cores from which they appear to have beeen derived, are mentioned and figured in Ball's paper "On Ancient Stone Implements of India," *Proc., Roy. Irish. Acad.*, 2nd Series, Vol. I, pp. 388-414. 1879.

52. Polished celt, large, thin, crescentic edge, worn; dark slate. **From** the slopes of Parasnath Hill. See *Proc., Asiatic. Soc. Bengal,* 1878, p. 125, and *Proc.; Roy. Irish. Acad.*, 2nd Series, Vol. I, pp. 394 and 395, Pl. XV, Fig. 9.

2603. Celt, small, straight worn edge, tapering sides, pointed butt.; trap? Found in a garden at Sahebgunge on the banks of the Ganges. Mr. J. Deveria.

2618. Piece of fossil wood, pointed, elongated, one side flat, truncated butt, beautifully polished. Sitakoond range, Chittagong. Pl. IX, Fig. 12.

3241. Celt, very long, sharp edge, flat sides; fine polished sandstone. Bagicha Tappa, Kakea Jashpur, Chota Nagpur. Hira Lal, G.S.I. See *Journ., Asiatic Soc. Bengal,* Vol. LVIII (1889), p. 254. Pl. IX, Fig. 9.

3694. Ringstone, broken; weathered mica schist. Nullah south of Ranchi.

4477. Celt, broken, very elongated, cylindrical body, straight edge; weathered trap?. Parhardia.

4478. Celt, unfinished, upper part chipped, edge polished; trap? Presented by the Gold and Silver Mining Co., Parhardia.

ASSAM.

The collection of prehistoric remains discovered near Tezpur by Mr. Penny, undoubtedly the largest series of Neolithic implements yet found in the Province, contains several specimens of more than usual interest. These are a shouldered adze and a number of belted hammerstones. The first has been described by Mr. H. C. Das-Gupta, together with a similar specimen from Kinarpara, Cachar. (*Journ., Asiatic Soc. Bengal,* Vol. IX. (1913), pp. 291-293). This writer remarks :— "The occurrence of these two implements of the Burmese type, in areas through which the wave of Khasia immigration very likely passed, before the race found its present hilly home, is of extreme interest and is quite in conformity with the view so long

held regarding a relationship between the Khasia of Assam and some of the older tribes of Burma, which has been based chiefly on linguistic grounds."

The second have formed the subject of a note by the writer entitled "Grooved Stone Hammers from Assam and the Distribution of similar Forms in Eastern Asia." *Journ., Asiatic Soc. Bengal,* Vol. X, No. 4, 1914, pp. 107-109. Grooved hammers and axes are perhaps the rarest of the Neolithic stone implements recorded from Eastern Asia, and their occurrence in Assam is of some interest.

865. Celt, large, polished; streaked and mottled jadeite. Mr. Healy, Geological Survey. Pl. IX, Fig. 21.

866. Celt, flat sides, faces and butt, worn edge, constricted shoulders; slate. Terabeg, near Michabri, Cachar. Mr. C. Brownlow through the Geological Survey. A long piece of polished stone with two grooves produced by sharpening also bears the same number 866. Its locality is unknown.

867. Celt, small, polished; tapering sharply to small butt; slate. Dibrugarh. Mr. Hannay, through the Geological Survey.

868. Celt, small, flat, thin; slate. Three feet below the surface, Sibsagar, Mr. S. E. Peal, through the Geological Survey.

996. Celt, broad, thin, flat sides curving to small butt; polished slate. Shillong. *Proc., Asiatic Soc., Bengal,* 1875, pp. 158-159. Pl. IX, Fig. 19.

997. Celt, wedge type, thick, flat sides; polished slate. Found in clay, four feet below the surface at Shillong. *Journ., Asiatic Soc, Bengal,* 1879, pp. 133-143. Pl. IX, Fig. 16.

998. Missing.

Specimens 6079-6104 and 6131-6145 were found under the surface while digging a drain at Bishnath, Tezpur district, by Mr. Penny, who presented them to Lord Curzon, from whom they reached the Museum.

6079. Fragment of smoothed sandstone.

6080. Fragment of smoothed sandstone.

6081. Fragment of smoothed sandstone.

6082. Fragment of smoothed sandstone.

6083. Hammerstone, grooved; light grey sandstone.

6084. Hammerstone, grooved; hard grey sandstone.

6085. Celt, small, broken; weathered slate.

6086. Worked piece of reddish sandstone.

6087. Worked piece of volcanic ash?

6088. Broken sandstone pebbles. 22 fragments.

6089. Piece of greyish-blue decomposed volcanic ash?

6090. Piece of greyish-blue decomposed volcanic ash? worked.

6091. Piece of greyish-blue decomposed volcanic ash? unfinished celt.

6092. Piece of greyish-blue decomposed volcanic ash? worked.

6093. Piece of greyish-blue decomposed valcanic ash? edged.

6094. Pieces of greyish-blue decomposed volcanic ash? 3 small pieces.

6095. Small fragments of sandstone pebbles, 8 pieces.

6096. Small fragments of sandstone pebbles, 8 pieces.

6097. Small fragments of sandstone pebbles, 7 pieces.

6098. Fragments of sandstone pebbles, 13 pieces.

6099. Piece of a small quartzite pebble.

6100. Piece of a small quartzite pebble.

6101. Celt, small, flat sides, straight butt; greyish-blue slate.

6102. Celt, small, thin flat faces, misshapen; weathered slate.

6103. Celt, with small shoulders and adze edge; slate. *Journ., Asiatic Soc. Bengal*, Vol. IV (1913), pp. 291-293.

6104. Celt, small, wedge type, wide flat sides; greyish-blue slate. Pl. IX, Fig. 13,

6105. Missing.

6131. Celt, medium, truncated butt, worn edge, weathered; polished and pecked gneiss?

6132. Celt, small, broad, sharp edge; polished porphyrite?

6133. Hammerstone, grooved; hard brownish sandstone.

6134. Hammerstone, grooved; mottled grey quartzite.

6135. Hammerstone, grooved; greyish-brown quartzite.

6136. Hammerstone, grooved small; dark mottled quartzite.

6137. Fragment of hammerstone; quartzite.

6138. Fragment of hammerstone; quartzite.

6139. Fragment of hammerstone; quartzite.

6140. Worked pieces of decomposed volcanic ash, perhaps unfinished or rejected celts.

6141. Eleven pieces of smoothed reddish sandstone. Pl. IX, Fig. 22,

6142. Broken sandstone pebble, not an implement.

6143. Eighteen pieces of sandstone, some of which are smoothed.

6144. Nine small and flat ovoid pebbles of sandstone, notched for binding

6145. Twenty-six pieces of small sandstone pebbles.

6114. Celt, shouldered ; arenaceous clay stone. Kowarpara, Cachar. *Journ., Asiatic Soc. Bengal*, Vol. IX (1913), pp. 291-293.

6321. Ringstone ; fine polished sandstone. Narainpur, Dewan Cachar. Found in the jungle by Mr. W. Townsend Smith, by whom it was presented to the Museum in 1910.

992. Celt, small, misshapen, sharply tapering ; polished volcanic ash ?, Kanoo Tea Factory, Assam. *Proc., Asiatic Soc., Bengal*, 1872, p. 136.

993. Celt, rounded gently tapering sides, crescentic cutting edge ; schistose rock. Mishmi hills, north-east of Sadiya. Anderson, "Western Yunnan," p. 414, Pl. I, Fig. 4.

BURMA.

W. Theobald, of the Geological Survey of India, appears to have been the first to draw attention to the occurrence of polished stone implements in Burma and to certain peculiarities which they possess. Many of the specimens catalogued here and now stored in the Indian Museum, were described and figured by him. *Mem., Geol. Surv. Ind.*, Vol. X, pp. 167-171. Writing of the palaeolithic implements of Madras and of the Nerbudda valley and of certain neolithic ones he says:—"One remarkable fact connected with these implements is the precise similarity in form and design which exists between those found in India and those in Europe, though the same variety does not exist in the East, where, from some cause or other, the art was not carried to the same perfection as it at one period reached in Europe, but so far as known specimens of Indian implements allow us to judge, and apart from the indication afforded by the material (flint so commonly used in Europe not occurring in India), it would be difficult to say from shape or manufacture whether any particular implement of palaeolithic type had been manufactured in Kent or Kuddapah, or if a particular neolithic celt of greenstone was from the neighbourhood of the Son or the banks of the Shannon. So close is the similarity, that there seems no room to doubt a community of origin between the palaeolithic races who manufactured and used such identical forms in India and Europe—an observation which has an even more extended application and significance with respect to the dolmens, cromlechs

and stone circles so plentiful in some parts of India, and so similar with similar (*sic*) erections in Europe.

Were there, however, any objectors so hardy as to argue that such similarity of monuments, both industrial, funereal, and religious, was merely the result of fortuitous similarity of conditions, it would seem as though a conclusive answer to such a supposition was provided in anticipation in British Burmah. It seems difficult to imagine what differing conditions could have obtained during the savage infancy of our race in Burmah, greater than existed between India and Europe; yet directly we cross from India, properly so called, to the countries lying to the eastward of the Bay of Bengal, we find stone implements not less abundant than elsewhere, but of an entirely different type. We no longer find the familiar Indo-European type either palaeolithic or neolithic, but one seemingly autochthonous to the Malayan countries, and both in size, shape, and design displaying considerable divergence from any of the ordinary types of weapons found elsewhere.

The main points of divergence are—1st, the frequency of forms possessing "shoulders," a peculiarity quite confined to articles from the Burmese or Malayan area; 2nd, the cutting edge being usually formed by grinding down on one side, as a chisel and not an axe; 3rd, the general small size and seeming inefficiency for any rough purpose, though it must be remarked that very small and well fashioned weapons are also found in India."

Though some of Theobald's conclusions need revision in the light of later knowledge, this quotation shows that he thoroughly appreciated the difference between the ordinary neolithic celt and the "shouldered" or "spade-celt" of Burma and other countries of Indo-China. The discovery of similar forms by V. Ball in Dhalbhum (*Proc., Asiatic Soc. Bengal*, 1875, pp. 118-122) added confirmation to the theory of a close ethnological connection between the Munda and Talaing races, already brought to light by philological researches. It is now generally admitted that the spade-celt is only associated with the Mon-khmer and allied peoples, and that it was probably introduced into India by the ancestors of the representatives of these races existing at the present day.

869. Spade celt, edge broken, beveled on front; bluish-grey slate. See *Manual of Geology of India*, p. 442, Vol. 1, and Vol. 2, p. 1, XXI, fig. 5.

870. Large adze-celt, sides taper towards butt; coarse compact sandstone. From a stream falling into the Than-in Chaung, a little south of Nattoung hill in Western Prome. *Mem., Geo.*

Sur. Ind., Volume X, p. 168, Pl. IV, 111, figs. 1*a* and 1*b*. W. Theobald.

871. Spade celt, very large, beveled on front, sides parallel, edge broken; polished fine-grained slate. Ya-guay village, Tavoy. *Mem., Geol. Sur. Ind.*, Vol. X, p. 169; Pl. IV, figs. 1*a* and 1*b*.

872. Spade celt, similar to 871 but much smaller, discoloured surface, edge broken; greyish-blue fine-grained slate. Pegu. W. Theobald; *Ibid.* p. 169; Pl. IV, figs. 2*a* and 2*b*.

873. Celt, small, axe-like, slightly shouldered, edge somewhat broken; compact grey slate. W. Theobald. *Ibid.* p. 169, Pl. IV, figs. 3*a* and 3*b*.

874. Spade celt, small, shoulders greatly enlarged at expense of body. Both faces equally ground away to meet in cutting edge. Finely polished dark slate. *Ibid*, p. 169, Pl. IV, figs. 4*a* and 4*b*. W. Theobald.

875. Chisel-celt, large, thin; both front and back beveled to meet in cutting edge; sides slightly taper to butt. W. Theobald. *Ibid.* Pl. V, figs. 1*a* and 1*b*.

876. Spade celt, small, broad type, front broadly beveled; polished, mottled, greenish slate. *Ibid.* Pl. V, fig. 2. Captain Fryer.

877. Spade celt, elongated, chisel-like, edge worn; hardened greyish clay slate. Captain Fryer. *Ibid.* Pl. V, fig. 3*a* and 3*b*. Pl. IX, Fig. 3.

878. Chisel-celt, elongated, thick, slightly flat sides tapering to butt. Front beveled for approximately ⅓ total length; hardened clay slate. Captain Fryer. *Ibid.* Pl. VI, fig. 1*a* and 1*b*.

879. Spade celt, small, thick; shoulders and bevel on front face long; dark schistose rock. *Ibid.* Pl. VI, fig. 2*a* and 3*b*. W. Theobald.

880. Celt, small, without shoulders, front beveled more than back to meet in sharp-cutting edge, flat sides; dark, arenaceous slate. Captain Fryer. *Ibid.* 1, Pl. VI, figs. 3*a* and 3*b*.

881. Ringstone, polished; calcareous sandstone.
Captain Fryer; *Ibid.* Pl. VII, fig. 1. Pl. IX, Fig. 10.

882. Celt, chisel type, broken, flat sides; roughly polished dark slate. Captain Fryer. *Ibid.* Pl. 7, fig. 2.

883. Celt, pointed oval section, faces taper to a sharp butt, convex edge, stone cut across natural fracture of rock, worked and weathered; dark slate. Captain Fryer. *Ibid.* Pl. 8, Fig. 1. Pl. IX, Fig. 1.

185. Spade celt, medium, flat parallel sides, rectangular section, front face beveled, cutting edge worn; discoloured dark grey slate. Captain Fryer. *Ibid.* Pl. 8, fig. 2.

885. Spade celt, broad type, shoulders square, cutting edge very worn; dark brown slate or hornstone. W. Theobald. *Ibid.* Pl. 8, figs. 3*a* and 3*b*.

886. Celt, small and tapering, slightly shouldered, plano-convex in section, cutting edge slightly worn; discoloured, grey fine-grained quartzite. Pegu. W. Theobald. *Ibid.* Pl. 8, figs. 4*a* and 4*b*.

887. Celt, elongated without shoulders, cut across bedding of rock, rectangular section, slightly tapers towards butt; very weathered banded limestone. Captain Fryer. *Ibid.*, Pl. 9, figs. 1*a* and 1*b*.

888. Spade celt, small, edges rounded by weathering; black rock of undetermined composition. Captain Fryer. *Ibid*, Pl. 9, figs. 2*a* and 2*b*. Pl. IX, Fig. 14.

889. Celt, small, axe-like, tapers to rounded butt, cutting edge convex, in section a compressed oval; dark schist. W. Theobald. *Ibid.*, Pl. IX, figs. 3*a* and 3*b*.

890. Spade celt, small broad type, both faces beveled to meet in cutting edge which is worn, sides slightly taper towards shoulders; black hardened slate. Captain Fryer. *Ibid.*, Pl. IX, figs. 4*a* and 4*b*.

891. Axe, large, roughly polished, broken; semi-circular cutting edge, oval section, flake marks still visible. Belogyan, Amherst district. Captain Fryer.

892. Celt, polished, tapering to butt which is missing; in section plano-convex, cutting edge sharp; dark serpentine.

893. Spade celt, chisel type, shoulders occupy more than one half of the implement, polished, sides slightly sloping, edge broad, very worn; hard slate. Captain Fryer. Pl. IX, Fig. 4.

894. Celt, elongated, straight sides tapering to butt, cutting edge convex; rectangular section; hard sandstone. Captain Fryer. Pl. IX, Fig 5.

895. Very weathered broken implement of uncertain nature. Captain Fryer.

896. Celt, flat, sides tapering rapidly to butt, cutting edge wanting.

897. Celt, flat, polished, flat sides tapering to butt, rectangular section, cutting edge worn; mottled crystalline rock. Captain Fryer.

898. Celt, smaller, axe-like, similar to 897; discoloured slate. Captain Fryer.

899. Chisel ?, flake marks still evident, oval section, cutting edge worn; polished hardened slate.

901. Celt, similar to 898, but tapers more rapidly to butt, cutting edge more convex; mottled red and reddish-grey slate. Pl. IX, Fig. 20.

902. Celt, elongated, polished, slightly tapering to butt, convex blade, sides enormously developed at expense of front face which they replace near butt; fine, hard greyish sandstone. Pl. IX, Fig. 2.

903. Spade celt, broad axe type, worn cutting edge, polished; mottled red and grey sandstone?

904. Celt, similar to 894 with flatter and broader cutting edge and sides partly rounded; hard greyish-brown sandstone.

905. Celt, butt end worn away, cutting edge developed from front face; polished fine-grained light brown sandstone.

906. Spade celt, small with slightly tapering flattened sides; polished black basaltic rock?

907. Celt, rapidly tapering sides, cutting edge worn; dirty white slate.

908. Similar to 907, but blade more axe-like; pink indurated quartzite.

909. Perhaps portion of a ringstone; hardened dark grey clay slate. W. Theobald.

910. Perhaps a broken hammerstone. Compare with 895; indurated clay slate.

911. Spade celt, right side missing owing to fracture along a cleavage plane; hard dark banded sandstone. W. Theobald.

912. Spade celt, small, broad chisel type; polished, greenish-grey phyllite.

913. Spade celt, cutting edge expanded over greater part of front face, polished; dark greenish-grey slate. W. Theobald.

914. Celt, small, similar to 898, straight sides, rectangular cross section; hard mottled pinkish sandstone. W. Theobald.

915. Spade celt ?, broad type, outline badly shaped; a decomposed volcanic rock. W. Theobald.

916. Celt without shoulders, small, similar to 898 but not so elongated, broken; dark clay slate. W. Theobald.

917. Spade celt, broad, badly shaped and broken; indurated grey slate. W. Theobald.

918. Spade celt, broad and massive, bevels of front face prolonged towards shoulders, cutting edge broken; light greyish-brown indurated slate. W. Theobald.

919. Spade celt, broad and massive, water worn; hard light brown sandstone. W. Theobald.

920. Celt, small and flat, slightly shouldered, top missing; dark indurated slate. W. Theobald.

921. Celt, small, tapers slightly to butt; badly shaped, thickens in centre, cutting edge chipped; dark indurated slate. East of Prome.

922. Ovoid stone disc, polished. One face somewhat flattened. Worked to a smooth edge all round. Fine grained greyish-brown quartzite. Sandoway. Captain Fryer.

923. Celt, small and tapering, rather like 901, prolonged bevel on front face which is also rounded off to meet the sides, edge broken, polished; light brown indurated slate. Ramri.

924. Celt, small and thin, slightly shouldered; polished fine-grained bluish-grey phyllite. Ramri.

925. Celt, thick, flat sides, cutting edge prolonged as a bevel over the front face; polished dark greyish-blue indurated slate. Surface bleached greyish-white.

926. Spade celt, broad, much weathered; dark, indurated arenaceous slate. Surface discoloured. G. S. I.

927. Spade celt, edge broken, like 926. Bleaching more evident.

928. Celt, small, flat tapering sides, like 898 in outline and edge.

929. Spade celt, very weathered; dark slate.

930. Spade celt, small and broad like 869, head of shoulder missing, weathered and discoloured; dark grey indurated slate.

931. Spade celt, medium, broad and thin, weathered and discoloured.

932. Like 931 but thicker. Pl. IX, Fig. 17.

933. I do not think that this is from Burma.

934. Spade celt, broad and thin, sides taper from shoulders; dark grey slate.

935. Spade celt, thin, edge wanting; light grey phyllite.

936. Spade celt, thin, badly shaped; indurated slate.

937. Same as 933.

995. Spade celt, small, badly shaped, intermediate type between broad and elongated forms; polished yellowish-grey, fine-grained sandstone, weathered. Pegu. W. Theobald.

5559. Spade celt, massive, broad type, very weathered; reddish-brown laminated slate. Bolspyin, Mergui District. Presented by the Government of Burma, 1898.

ANDAMAN ISLANDS.

The following specimens were collected by the late F. Stoliczka of the Geological Survey of India.

1011. Flat piece of worked sandstone.

1012. Not an implement.

1013. Not an implement.

1014. Piece of sandstone ?, worked.

1015. Burnt red sandstone, worked ?

1016. Piece of hardened shale, worked.

1017. Missing.

1018. Not an implement.

The following specimens were found near a native house at Pilai Bay, Pilai or Elphinstone Island, in 1882 by John Anderson.

1790. Pounding stone, ovoid, worn at periphery, depressions in centre of flat faces; lava ?

1791. Pounding stone, ovoid, broken; coarse grey granite.

1792. Pounding stone, ovoid, broken; fine grey granite.

1793. Pounding stone, elongated, cylindrical, broken; gneiss.

1794. Piece of schist or phyllite, not an implement.

UNKNOWN LOCALITIES.

C. 151. Celt, one side flat, one side rounded, sharp crescentic edge, small flat butt; polished limestone. No locality.

1763. Spade celt, small, elongated; polished limestone, weathered. River bank, Tamabavati Nagri.

1766. Hammerstone, rectangular prismatic, rounded ends; diorite. No locality.

1767. Hammerstone, polished, ends worn; coarse diorite. No locality.

1768. Crusher or mealing stone; polished trap. No locality.

1773. Celt, large, chisel edge, beveled sides, truncated butt; basalt. No locality.

1778. Celt, small, pointed butt, worn edge; trap. No locality.

1784. Celt, large, pointed butt; trap. No locality.

1785. Celt, large, pointed, butt; speckled trap. No locality.

1786. Celt, medium, small smoothed butt, sharp edge; trap. No locality.

1787. Celt, medium, chipped and polished, worn edge; trap. No locality.

1788. Celt, medium, flat, small pointed butt, sharp edge; stained trap.

1789. Celt, small, polished, straight edge, rounded sides; trap. No locality.

344. Celt, small, one face flat; polished trap. Dharwar district. R.B.F.

346. Portion of a ringstone; polished basalt. South India. R.B.F.

797. Broken piece of a perforated and smoothed stone; chloritic schist. Belgaum district. R.B.F.

802. Spherical ball; coarse trap. Belgaum district. R.B.F.

COPPER ANTIQUITIES.

The actual descriptions of the copper antiquities are taken very largely from Anderson's catalogue, but each specimen has been remeasured and reweighed. (See "Catalogue and Handbook of the Archæological Collections in the Indian Museum", Calcutta 1883, pp. 392-425.)

BENGAL.

Pachamba sub-division, Hazaribagh district.

Pachamba is a sub-division of the Hazaribagh district of Bengal, and the following pieces of metal were obtained there from a native who found them "within a cubit's depth of the surface of a hillock which covers an area of about 4 local cottahs (*i.e.*, about 10 or 12 cottahs of the Bengal standand measure). The hillock is surrounded by others, some larger and some

smaller ", but the exact locality where the metal pieces were discovered the finder would not divulge, owing to a superstition he had regarding them. (See *Proc., Asiatic Soc. Bengal*, pp. 232-234. *Geology of India*, Pt. 1, p. 443).

Captain W. L. Samuells, who obtained two of these objects from the natives, was under the impression that one of them was the head of a battle-axe, and that it had been mounted in a primitive fashion in the end of a split stick; but the other being oval, he could not conjecture to what use it had been put. The late Dr. T. Oldham pointed out that both were more or less " simply the bloom, derived from the small copper furnaces, which were known to have been in use with the old smelters or workers in copper in the country, and of which little smelting pot examples still remained ". One " bore all the marks of the fine earth or sand into which it was run, a rudely circular or slightly oval thin plate of copper, just as the melted metal would naturally spread out, if poured out in the semi-viscous state in which such little pots would yield it. On this piece there was not a trace of hammering or of the application of any tool. The second, on the other hand, though precisely similar to the first for one-half its surface, had the other portion beaten and hammered up to a straight line, the two ends of this being hammered out into two shoulders or two semi-circular curved recesses, which would be admirably suited for the application of a handle formed of split bamboo or stick, as Captain Samuell applied it. But the curious part of it is, if these were so intended for the application of a handle,—and with such a handle unquestionably the heavy mass of copper would form a rude, but very effective, axe or club, though not a cutting tool, it is doubly strange that those who knew so well how to hammer this part so nearly into shape should not also have hammered out the edge so as to form a sharp cutting surface. The edge now remains with all the roughness and thickness of the old bloom just as it flowed from the melting pot."

These metal plates would appear to be half formed battle axes, but at the same time, the fact should not be lost sight of, that three of them closely resemble a copper-plate, recording the grant of an estate in the Balasore district, figured and described by Mr. Beames (*Ind. Ant.*, Vol. I, 355, Pl. 14). The fourth is unlike the form of any known weapon, and may, like the others, have been intended for writing of some sort.

Pa.-1. A flat but oval metal plate, measuring 17·6 cms. × 14·8 cms. X 1·3 cms. One side is perfectly flat, but the other slightly convex and rounded off to the former, the edge being rough in some places and partly hammered in others, each surface bearing traces of the roughness produced by the sand or earth in which it was cast. It weighs 1,715 gms.

Pa.-2. The plate described by Captain Samuells as a battle axe and fitted by him into a handle. It resembles Pa. 1 in having a flat, and a convex surface, but the edge is not so thick, although beveled off in the same way. The shouldered portion has been hammered out and is the thickest part of the plate, being 2 cms across. The total length is 15·2 cms., the breadth 13·5 cms., and the thickness 1 cm. It weighs 1450 gms.

Pa.-3. Another and more unfinished than the last, slightly longer, not so broad, and with the greatest thickness attained at the concavity at the sides, there being no trace of hammering, the plate in casting having thinned away to the lower edge. It measures 15·5 × 12 cms., and has a thickness at the centre of 7 mms., and at the concavity of 9 mms., one side being much thinner than the other. It weighs 1,509 gms.

Pa.-4. Another but smaller, flat on both surfaces, and of the nearly uniform thickness of 7 mms., even at the edges which are quite flat, the whole plate being covered with hammermarks. It measures 13 × 10·5 cms. × 7 mms., and weighs 1158 gms.

Jhatibani Parganna, Midnapur District.

A flat celt or battle axe with a rounded cutting edge ending in two well-marked shoulders continued down from the butt. The cutting edge is considerably more than half a circle and has a diameter of 15·7 cms. The upper end measures 10 cms. across and from it to the expansion of the edge, in a vertical line, is 7 cms. The total length of the specimen is 18·8 cms. It is highly finished and weighs 2,180 gms. Mr. F. A. Perroux, who presented the specimen to the Museum, stated that "it was found at the foot of the hill system of Manbhum, beyond Sildah, in the Pargannah of Jhatibani", in the Midnapur district. "A village called Tama-juri is not far from the site where the copper axe was found. It was discovered by some villagers who were digging a pit for some domestic purpose." Pl. X. Fig. 2.

UNITED PROVINCES.

Bithur, Cawnpore District.

The town of Bithur is situated about 12 miles north-west of Cawnpore, on the banks of the Ganges. The following remarkable copper barbed spear-head or harpoon was found near this place, and was presented to the Asiatic Society of Bengal in 1821. (*Asiatic Researches*, Vol. XIV, 1822, Appendix III, Part. 3.)

Br.-1. It measures 31·5 cms. in length, and now weighs about 539 gms. It consists of three portions, a terminal tapering blade 16 cms. long

with a maximum breadth of 5·6 cms. at its commencement, a cylindrical barbed portion, and the tang. The blade is traversed longitudinally by a strongly pronounced midrib increasing in thickness from the tip to the base. Each side of the blade, at its beginning, has a backwardly curved process or barb. The cylindrical barbed portion consists of two outwardly projecting rod-like barbs, on each side, separated from each other and from the barbs of the blade, by intervals of ·2 cms. Each barb is about 1·3 cms. in length, and 5 mms. in thickness. Besides these there is also a small rod-like outwardly projecting process on each side before the beginning of the tang, one being perforated at its base by a hole or eye having a diameter of 6 mms. for the passage of a cord used for tying the harpoon on to its shaft. This portion of the weapon is 8 cms. long and nearly 2·5 cms. in diameter. The tang is slightly tapered towards its proximal end and is almost 7·5 cms. in length.

Mainpuri District.

The district of Mainpuri is situated in the United Provinces to the east of Agra, the Jumna defining it on the south. The following specimens were obtained in this district, having been unearthed by a cultivator when tilling his field. (*Proc., Asiatic Soc. Bengal*, 1868, pp. 251 & 262. *Geology of India*, Pt. 1, p. 443.)

When disturbed they were found lying "littered together in a heap, without order, and not enclosed in any vessel or receptacle, and they were not at a great depth below the surface."

Mi.-1. A copper spear-head 19 cms. long, and with a maximum breadth across the teeth of 5 cms. The lower end is cylindrical for about 4 cms., having a diameter of 1·2 cms., and from the further end of the cylindrical portion a ridge runs along both surfaces of the blade of the instrument, the sides of which are deeply serrated, like the edge of a saw, with five fine recurved teeth, the largest measuring 3·4 cms., along its longest border. The expansion at the distal end of the cylindrical portion has a hole through it, doubtless for tying the spear-head on to the shaft, the more contracted tang being let into the socket of the shaft. It weighs 392 gms.

Mi.-2. A broad flat celt, with a slightly rounded cutting edge, the celt having a breadth at this end of 11 cms., and at the opposite end of 8·3 cms., the maximum thickness being 1 cm., one side is perfectly flat, but the other is very slightly convex. The implement closely resembles some of the forms of celts found in the north of Europe. It may have been used as a battle-axe. (*Journ., Asiatic Soc., Bengal*, Vol. XLVIII, Pt. 11, p. 136). Its weight is 1,161 gms.

Mi.-3. A long, narrow and thin celt, measuring 12 cms. in length and 4·5 cms. in breadth at its lower, and 3·5 cms. in breadth at its upper end. It is not more than 3 mms. in thickness. It weighs 118 gms.

Six rings resembling bangles, but three of them are linked together, having been apparently found in this condition, which renders it improbable that they were wrist ornaments. Some of them, however, are finished off in the way some bangles are at the present day, *viz.*, beveled off at the edges with a slight longitudinal ridge externally. They are all open rings, and the largest has a maximum diameter of 5·4 cms., and the smallest of 4·5 cms. The late Dr. T. Oldham has pointed out that they resemble in form the so called "ring money" of northern antiquaries. They weigh 115 gms.

Fatehgarh, Farrukhabad District.

This place is situated close to the city of Farrukhabad in the United Provinces. It is stated in the Asiatic Researches (*Op. cit.*, page 252) that thirteen copper swords were found here, but the circumstances attending the discovery have not been recorded. Only four of these weapons are mentioned in the catalogue of the Asiatic Society of Bengal.

Three of the swords are leaf-shaped. They differ from the leaf-shaped swords of Europe in presenting no contraction along the blade from the tip to the hilt, and in their apparently having had no wood on the handle, which was probably only bound with hide cut in strips. This part of these swords also differs from European weapons in having a point of considerable length projecting outwards between two and three inches from each side of the hilt. The edges are not very sharp, and in one there are two large gashes near the hilt. The shortest sword has the smallest handle, much too small for an average man's hand. The midrib is well defined to the tip.

The other sword has a long tapering blade, one cutting edge of which is rounded off into the handle, while the other turns in towards it at an obtuse angle. The midrib is well pronounced. The hilt is quite different from the other three, in being much larger and in having only a short projection on one side of its proximal end, *viz.*, on the side on which one cutting edge forms an obtuse angle with it.

Fatehgarh-1.—A copper sword, 74·3 cms. in length from the centre of the hilt to the tip: greatest diameter at base of blade 8·7 cms., and 16 cms. from the tip; 6 cms. thick at the base of the blade, through the midrib 1·4 cms., and 6 cms. at 2·5 cms. from the tip. The handle is 10·2 cms. long, 1 cm. in thickness, and 2·8 cms. in breadth, the distance between the divergent points of the hilt being 12·2 cms. One side of the hilt is nearly flat

and the other slightly convex, and its sides bear unmistakeable signs of having been hammered out. The blade is covered with a thin layer here and there of the earth in which it was buried. Weighs 2124 gms.

Fh.-2. Another copper sword similar to the last, but measuring 74·5 cms. long, and 7·3 cms. in breadth a little above the handle, which is about 10 cms. long to the hilt: the divergent parts of the latter are twisted at their ends, but 11·5 cms. apart. The handle at the middle is 2·5 cms. broad and 1·4 cms. in thickness, the maximum thickness of the blade being 1·6 cms. It weighs 2380 gms.

Fh.-3. Another copper sword, 65 cms. in length, with a maximum breadth of 7 cms. and thickness of 1 cm. The handle is rather short, being only 8 cms. long, 2·5 cms. broad and 1 cm. thick: the divergent points of the hilt are 9·5 cms. apart. It weighs 1238 gms.

Fh.-4. Another copper sword, of a different form, as already stated; it is not leaf but dagger shaped, with only one thick short projecting point from the hilt, the handle being very long. The total length is 74·3 cms. and the handle measures 12·3 cms. in length by 3·5 in maximum breadth, with a thickness of 1·5 cms. The blade above the handle is 7·5 cms. in breadth and 1·7 cms. in thickness. The midrib of the blade is strongly pronounced, and on one side it is prolonged on to the handle. It weighs 2112 gms.

Fh.-5. The following curiously-shaped thin copper object has all the external characters of the foregoing swords, being similarly covered here and there with the same soil, and its resemblance to them is in this respect so marked, that it probably formed one of the fourteen objects said to have been discovered at Fatehgarh. It consists of an upper portion, semicircular in form, with a transverse diameter of 16 cms. and thickness of 3 mms., continuous below, with long divergent sword-like processes, but above these a long curved process is given off on each side, its free end being curved downwards and inwards, and tapering towards its apex. This process has a breadth at its base of 6 cms. The lower border is thicker than the upper, and one side of the process is flat and the other slightly convex from border to border. The lower divergent process begins here laterally, and, measured from this point, it is 46·5 cms. in length, with a basal diameter of 6·5 cms. Each is sword-like in form, and tapers to its apex, the outer border being nearly straight and the inner curved. It weighs 2157 gms. It is impossible to determine to what purpose this curious object was put.

Vincent Smith, following G. Coffey, Curator of the Department of antiquities in the National Museum, Dublin, regards this object as a human figure presumably used as a religious symbol or image. It reminded Coffey of

certain figures of much later date found in Gaulish graves in Italy. (*Ind. Ant.*, Vol. XXXIV, Oct. 1905, p. 238).

CENTRAL PROVINCES.

Gungeria, Balaghat District.

The village of Gungeria, where the following objects were discovered, is situated in the Mair estate, about 36 miles to the north of Burha, and about half-way between Mandla and Seoni.

They were discovered in the following way, according to Mr. Bloomfield. (*Proc., Asiatic Soc., Bengal*, 1870, p. 131, Pl. 2). "On the morning of the 21st January last (1870), two boys tending cattle saw sticking up from the ground what appeared to them to be an old piece of iron. They pulled it up and began grubbing up the earth where they had found it, and within a few inches of the surface came upon several other pieces. After this, a regular excavation was commenced, and 424 pieces of copper, weighing altogether 414½ seers (829 lbs.) and 102 pieces of silver weighing 80½ tolahs, were exhumed. * * * The place where the discovery was made is a piece of waste land contiguous to the present village of Gungeria; the spot where the excavation was made is about 100 yards to the south-west of the village; the hole in the ground from which all were taken is only about 3 feet long by 3 feet wide and 4 feet deep. All the inhabitants agree that, until about 20 years ago, this particular place was always covered with jungle; during that year it was cleared and planted with *Kudu*, and since then has been left uncultivated as a grazing place for village cattle. The oldest residents in the neighbourhood are unable to throw any light on the origin of these curiosities. * * * * * * * * The copper pieces when found were arranged carefully, the larger pieces being in alternate transverse layers, and the others in regular order one above another. The silver was found in a lump by the side of the copper, all the plates adhering together, so that at first it looked like a ball of earth.

"It would therefore seem likely that this curious find had originally been buried for some special object, probably in connection with some religious rite, as the silver ornaments, as was suggested by Dr. Oldham, resemble those used in decorating dedicated cattle. It has also been suggested that these silver objects were human ornaments, not bovine". (J. Cockburn, *Journ., Asiatic Soc., Bengal*, Vol. XLVIII, Pt. II, p. 136).

Ga. 1.—A copper instrument, weighing 2943 gms. and resembling a huge chisel in form. It measures 60·8 cms. in length. Its upper end has

a diameter of 2 cms., with a breadth of 6·6 cms. across the expanded, slightly rounded, cutting edge. The sides are flat, with a maximum thickness of 2 cms., the upper end being only 5 cms., but each side contracts as it reaches the cutting edge. One surface of the instrument is decidedly convex, and the opposite markedly concave, except in its lower sixth. The sides very gradually diverge, and, at 15 cms., from the upper end, the breadth is about the same as at 33 cms. but, within 4 cms. of the cutting edge, the expansion is very sudden. The marks of the hammer by which this instrument was beaten out are still very apparent. The cutting edge is blunt, having a thickness of nearly 4 mms. (*Op. cit.*, Pl. 11, figs. 1 a & 1 a′).

This instrument may have been used as a weapon, and if so, it was probably hafted by being passed through a wooden handle and secured by a ligature.

Ga.-2.—Another, weighing 845 gms., and of the same form as the last, but not so thick or concave. It measures 49·2 cms. long, 6 mms. thick, and 2·3 cms. broad above, and 4·5 cms. across the cutting edge, which is sharp.

Ga.-3.—Another similar instrument, not so long, but considerably thicker than the last, and weighing 1486 gms. It measures 40 cms. long, 2·2 cms. in breadth at the upper and 4·6 cms. across the cutting edge, the maximum thickness being 1·5 cms. The upper end is flattened as if it had been used for a hammer. (*Op. cit.*, Pl. 11, figs. 1 b. and 1 b′).

Ga.-4.—Another, shorter than the last, and more wedge-shaped than any of the foregoing instruments. It weighs 1574 gms. and is 30·5 cms. long. The upper end measures 2·8 cms. across. The maximum thickness is 1·8 cms. The cutting edge is blunt.

Ga.-5.—A wedge-shaped celt, weighing 1539 gms., and measuring 19·8 cms. long, 4·4 cms. broad at the top, and 8 cms. across the convex cutting edge, which is moderately sharp. It is 1·8 cms. in thickness at the middle, but thins off at the upper end, where it is not more than 7 mms. thick. There is a slight convexity between the two ends, and the sides are convex. One broad surface is more convex than the other. The upper end is flattened out somewhat, as if it had been used for hammering, but this is not recent. (*Op. cit.*, Pl. 11, figs. 2 a & 2 a′).

Ga.-6.—A celt, 13·6 cms. long, and weighing 706 gms. It measures 8·8 cms. across the cutting edge and 5·2 cms. at the upper end, which has its border slightly convex, the lateral borders being concave, each with two surfaces formed by a vertical ridge. One surface of the celt is flat and the

other convex. The cutting edge is unsymmetrical, evidently due to use. It is 1·2 cms. in thickness at its middle. This is a world-wide form.

This celt may be compared to the copper celt, *fig.* 246, No. 10, from the country of Waterford, figured by Sir W. Wilde, although its cutting edge is not so broad or rounded. The following example, Ga.-7, also resembles it. They illustrate Sir W. Wilde's supposition that the first makers of these implements "having once obtained a better material than stone, repeated the form they were best acquainted with; but economized the metal, and lessened the bulk by flattening the sides". (*Cat. Ant. Mus. Roy. Irish. Acad.*, p. 363).

Ga.-7.—Another, of much the same outline as the last, but smaller, weighing 514 gms., with a length of 12·5 cms., and a breadth of 7·7 cms. across the cutting edge, and of 3·5 cms. above. It differs from the last in having one surface so convex as almost to form a ridge, while the opposite surface is somewhat concave. Its maximum thickness is 1·4 cms. The sides are slightly concave from above downwards, expanding towards the cutting edge, which is only slightly convex and not very sharp. The upper border appears as if it had been used as a hammer. Pl. X, Fig. 3.

Ga.-8.—Another flat celt, better made than the foregoing, flat on one surface and slightly convex on the other, and with the sides more concave from above downwards, the upper end being slightly expanded, and the lower portion considerably so, with a convex cutting border moderately sharp. It weighs 875 gms., and is 17 cms. long, with a breadth of 9·6 cms. across the cutting edge, and 4·5 cms. at the upper end, the greatest thickness being 1·4 cms.; but it is thinner towards both ends. It is a common type found in many countries. This and the following six axe-shaped celts are a further illustration of the economy practised by these early workers in metal, in which the sides of the instrument are cut out, and the upper end narrowed, the cutting edge being a broad lunette. Evans says that "celts resembling these Gungeria specimens have been found at Tel Sifr, in Southern Babylonia. Some from that place, and from the island of Thermia, in the Greek Archipelago, are also in the British Museum. Nearly similar instruments, said to be made of copper, have been found in Austria, Denmark, Sweden, Hungary, France and Italy." Pl. X, Fig. 5.

Ga.-9.—A much larger celt of the same type, measuring 22·5 cms. in length, and weighing 2116 gms. It is much expanded across the cutting edge, which is highly convex but blunt, whereas the upper end is narrow, not measuring more than 4 cms. across, whilst the cutting edge has a

breadth of 16·5 cms. The sides are concave from above downwards. The maximum thickness is 1·7 cms., but it thins off above and below, and the upper is as sharp as the lower border or cutting edge. This and the following five celts belong to one and the same type, and resemble the Irish bronze celts described and figured by Sir W. R. Wilde from the ruins of Kilerea Castle, Ireland. (*Op. cit.*, page 364, fig. 247. *Op. cit*, Pl. 11, figs. 1 c and 1 c i.)

Ga.-10.—Another flat celt of the same kind, but not so thin or narrow above. It weighs 1810 gms., but a considerable piece has been cut off for analysis, so reducing the weight. This section shows the pure character of the copper. It measures : total length 21·5 cms.; breadth across the cutting edge, which is much hacked, 15 cms.; breadth above 4·3 cms.; maximum thickness 1·5 cms., but thinning off above and below. One surface slightly concave, the other flat.

Ga.-11.—Another flat celt of the same type, but broader above. It weighs 1458 gms., and is 19 cms. in length ? Its cutting edge bears unmistakeable signs of use, as it is worn away and is now slightly convex. It has a transverse breadth of 14·8 cms., while the upper end is only 5·2 cms in breadth. The maximum thickness at the middle, as in the previous specimen, is 1·1 cms, but the weapon is slightly thinned away above and beveled off at the cutting edge. One surface is nearly flat and the other only moderately convex.

Ga.-12.—Another flat celt, weighing 1641 gms., and measuring 20·5 cms. in length and 1·5 cms. in thickness; but the celt is nearly as thin at its upper end as it is at the unsharpened cutting edge, which is very convex. It measures 13·5 cms. across the cutting edge and 5·4 cms. across the opposite end. Pl. X, Fig. 1.

Ga.-13.—Another flat celt weighing 1630 gms. and measuring 21·5 cms. in length. The sides are not so concave as in the previous celts. The breadth across the celt above is 5·2 cms., and across the cutting edge 14·3 cms.; but the edge, as in others, does not appear even to have been sharpened. One surface is flatter than the other, and a ridge runs down the lateral border, as in Ga.-6. It is only 1·3 cms. thick, and it thins off at both ends.

Ga.-14.—Another, 23 cms. long with broad upper end 8 cms., and concave lateral borders, the cutting edge having a breadth of 15·7 cms., and being only moderately sharp. It is more rudely made than the six foregoing implements, and has apparently been in use, as the edge bears signs of wear. Its maximum thickness is 1 cm., and it thins off towards both ends. It weighs 1875 gms.

Ga.-15.—Another flat celt, belonging to a shorter and more compressed type, with a rounded upper border and a very much expanded and rounded

cutting edge. It weighs 853 gms., and is 14·5 cms. in length. It measures 12·6 cms. across the cutting and 5 cms. across the upper border. Both sides are more or less convex, and the lateral borders slightly concave as they approach the cutting edge, which is sharp. Its maximum thickness is 1·2 cms., but it thins off considerably towards the upper end. (*Op. cit.*, Pl. II, fig. 36.) Pl. X, Fig. 8.

Ga.-16.—Another type of instrument, long and thin with a rounded cutting edge, with a marked expansion forming a kind of shoulder at the commencement of the cutting edge. It measures 57·2 cms. in length, with an average thickness of 4 mms., and it weighs 1051 gms. The cutting edge is more than half a circle, and has a diameter of 9·7 cms., while the upper end is only 3·1 cms. in breadth. The upper edge is also a cutting surface, and is as sharp as the lower border. The margins have a crimped appearance, due to hammer-marks, which also cover its whole surface. (*Op. cit.*, Pl. 11, Fig. Ic and Ic′).

Ga.-17.—Another like the last, but better finished, and with its upper end only moderately thinned off. It weighs 1330 gms., and its length is 55·3 cms., the greatest breadth across the sharp cutting edge being 97 cms., and at the upper end 2·2 cms., the thickness being 6 mms. One side is flat and the other convex. Hammer-marks are scarcely visible and only on the margins.

Ga.-18.—Another like the last, but not so long or thick, and weighing 832 gms. It measures 50 cms. long and 5 mms. thick. It is 8·6 cms. across the cutting edge and 2·1 cms. at the upper end. One surface is flat and the other convex. The cutting edge is sharp and also the opposite end.

Ga.-19.—A flat celt or axe-head with the same form of cutting edge as in these elongated forms. It is a short broad type, weighing 902 gms., and measuring 17·3 cms. in length. The upper end measures 9·7 cms. across, and from it to the expansion of the cutting edge in a vertical line is 10·2 cms., the depth of the cutting surface being 7 cms., the sides being nearly parallel. The thickness is inconsiderable, being only 6 mms. There is a flat and a concave surface, and the sides are very thin, the upper end having also a cutting border. (*Op. cit.*, Pl. 11, Fig. 3c.)

Ga.-20.—Another like the last, weighing 992 gms., and measuring 16·5 cms. long, 15·3 cms. across the cutting border, and 9·7 cms. in breadth above. It is 7 mms. thick. Pl. X, Fig. 7.

Ga.-21.—Another like the last, weighing 1122 gms., and measuring 17 cms. long, 14·5 cms. across the cutting border, and 9·8 cms. in breadth at the upper end. It is 7 mms. in thickness.

Ga.-22.—Another weighing 1260 gms., and measuring 18·4 cms. long, 15·7 cms. across the cutting edge, 10 cms. in breadth above, and 8 mms. in thickness.

Ga.-23.—A thin plate of silver resembling the outline of the front of a bull's head, the lateral downwardly curved processes corresponding to the ears, but no horns being represented. The lower half of one of the processes is contracted and expanded three times, the tip forming a narrow termination to the last dilatation. In these details these processes do not resemble horns. The plate is about the thickness of ordinary paper: and it measures 12 cms. in length, with a maximum breadth across the processes of nearly 14·5 cms.

Ga.-24.—Another and similar plate but with a notch above, this feature being but slightly marked in the previous specimen. Length 12 cms., breadth 15 cms.

Ga.-25.—Another plate, 10·5 cms. long and 13·7 broad.

Ga.-26.—Another plate, 10·3 cms. long and 14 cms. broad.

Ga.-27.—Another plate, 10 cms. long and 13·3 cms. broad. (*Op. cit.*, Pl. 11, Fig. 5b.) Pl. X, Fig. 4.

Ga.-28.—Another, with fine long-tapered processes. Length 7·7 cms., breadth 13 cms.

Ga.-29.—Another, like the last. Length 7·6 cms., breadth 13·4 cms. (*Op. cit.*, Pl. 11, Fig. 5a.)

Ga.-30.—Another, 7 cms. long and 12·6 broad.

Ga.-31.—A thin silver disc, slightly concave and crimped at the margin. Diameter 13·4 cms.

Ga.-32.—Another similar disc: diameter 12·2 cms. Pl. X, Fig. 6.

Ga.-33—Another similar disc: diameter 11·6 cms.

Ga.-34.—A fragment of a disc, the border stamped with a line of small dots. Length 8·5 cms., and breadth 7 cms.

WESTERN CHINA, YÜNNAN PROVINCE.

Manwyne.

This village lies within the western frontier of the Chinese province of Yünnan, and is situated on the right bank of the Taping river, which falls into the Irrawaddy at Bhamo, in Upper Burma.

Me.-1.—A socketed bronze celt of the following composition, *viz.*, copper 90; tin 10. The edge is very oblique, and, on the upper margin, behind the cutting edge, there are two divergent projections. The lower part also

of the cutting edge ends, not in a point, but in a short concave margin at right angles to it, after which it sweeps abruptly round in a marked course to the lower side of the socket. Its greatest length is 10 cms. The socketed portion has a maximum breadth of 5 cms., and thickness of 1 6 cms., and at its contracted portion before the expansion of the blade its breadth is 3·7 cms., and thickness 1·2 cms. The celt was probably fastened on to a curved wooden handle. Its most striking features are its forked process, its very oblique edges and the notch at the lower end of the cutting edge. Anderson, *Report on the Expedition to Western Yünnan*, p. 290.

UNKNOWN LOCALITY.

Lu.-1.—A short copper sword or dagger of the same type as the series Fh. 1-4 from Fatehgarh. It measures 42·7 cms. in length, with a maximum breadth below the handle of 4 cms., and a thickness of 7 mms.

The handle is 7·6 cms. long, 1·4 cms. in breadth, and 6 mms. in thickness. The divergent hilt points are extremely long, their tips being 13·7 cms. apart; in view of their great length, this dagger may have been used by being grasped with the two points between the thumb and first finger. It weighs 374 gms.

EARLY IRON AGE.

Antiquities of this period are very poorly represented in the Museum. As regards Southern India, certain specimens of pottery and fragmentary human bones, found in association with rusted iron implements in tumuli of the Salem District and of Coorg, are exhibited. They are not catalogued here, because I am not convinced that these particular tumuli are prehistoric.

Western India is also represented by various objects from ancient tombs in Baluchistan. These specimens have been fully described by Anderson. *Catalogue and Handbook of the Archæological Collection in the Indian Museum, Calcutta, 1883*, pp. 426-437.

Bihar is represented by eight arrowheads, two fragments of knife blades and fourteen other pointed objects in iron. They are all very rusted. (No. 3678.)

APPENDIX I.

LIST OF THE PREHISTORIC REMAINS FROM FOREIGN COUNTRIES PRESERVED IN THE INDIAN MUSEUM.

EUROPE.

England.—Palæoliths from Norfolk. Nos., 702, 952-955.

France.—Chipped flints. St. Acheul. Nos. 956-957.

Flint cores and flakes. Les Eyzies, Dordogne. Nos. 1071-1088.

Flint cores and flakes. Le Moustier. Nos. 1089-1096.

Flint cores and flakes. Langerie. Nos. 1097-1119.

Flint cores and flakes. Gorge d'Enfer. Nos. 1120-1126.

Flint cores and flakes. La Madelaine. Nos. 1153-1227 and 1779-1782.

Denmark.—Flint implements. Nos. 944-950.

AMERICA.

Alleghany Mountains.—One belted stone axe. No. 1765.

Antigua, West Indies.—Obsidian Core. No. 957.

Mexico.—Obsidian Flakes. Nos. 1234-1237.

AFRICA.

Egypt.—Chert flakes. Helouan. Nos. 1694-1713 and 1716-1753.

Flint implements. Fayum. Nos. 5866-5968.

Somaliland.—Bouchers and palæoliths. Nos. 5628-5643.

The Fayum and Somaliland specimens were collected and presented by Sir H. Seton-Karr.

Australasia, New Hebrides.—Stone adze. No. 1038.

Caroline Islands.—Shell adze. No., 1039.

Solomon Islands.—Shell adzes. Nos. 1776-1777.

ASIA.

Japan.—Obsidian chips and arrow heads. Nos. 1210-1213 and 1214-1233.

China, Yunnan.—Jadeite and other celts. Tengyueh. Nos. 938-943 and 963-991. See Anderson: *Western Yunnan*, p. 410-415, and J. Coggin Brown: "Stone Implements from the Tengyueh District, Yunnan Province. Western China," *Journ. Asiatic Soc., Bengal*, Vol. V, New Series, No. 8, 1909, pp. 299-305.

APPENDIX II.

SOMALILAND.

These specimens are described in detail to show the great likeness they bear to South Indian types.

The following specimens are from Jablo, 80 miles from Berbera and were presented by Sir. H. Seton Karr in 1902.

5623. Boucher ? ; small, weathered ; flint.

5629. Palæolith, medium, chipped spheroid ; greyish-white flint.

5630. Boucher, medium, point thin and elongated, pebble-butt ; grey flint.

5631. Boucher, small, pointed ; coarse purplish quartzite.

5632. Boucher, small, pointed ; mottled-grey flint.

5633. Boucher, broad pointed oval, rude ; mottled reddish-grey flint.

5634. Palæolith, small, chipped edge ; opaque white flint.

5635. Boucher, large, elongated oval, half pebble-butted ; quartzite.

5636. Boucher, large, elongated oval, half pebble-butted ; quartzite.

5637. Palæolith, ovoid, thick sharp edge all round ; mottled quartzite.

5638. Boucher, medium, rude ; flint deposited round a limestone pebble.

5639. Boucher, medium, sharp point ; reddish-grey flint.

5640. Boucher, medium, sharp edge all round; grey flint.

5641. Boucher, small, pear-shaped, truncated point ; flint.

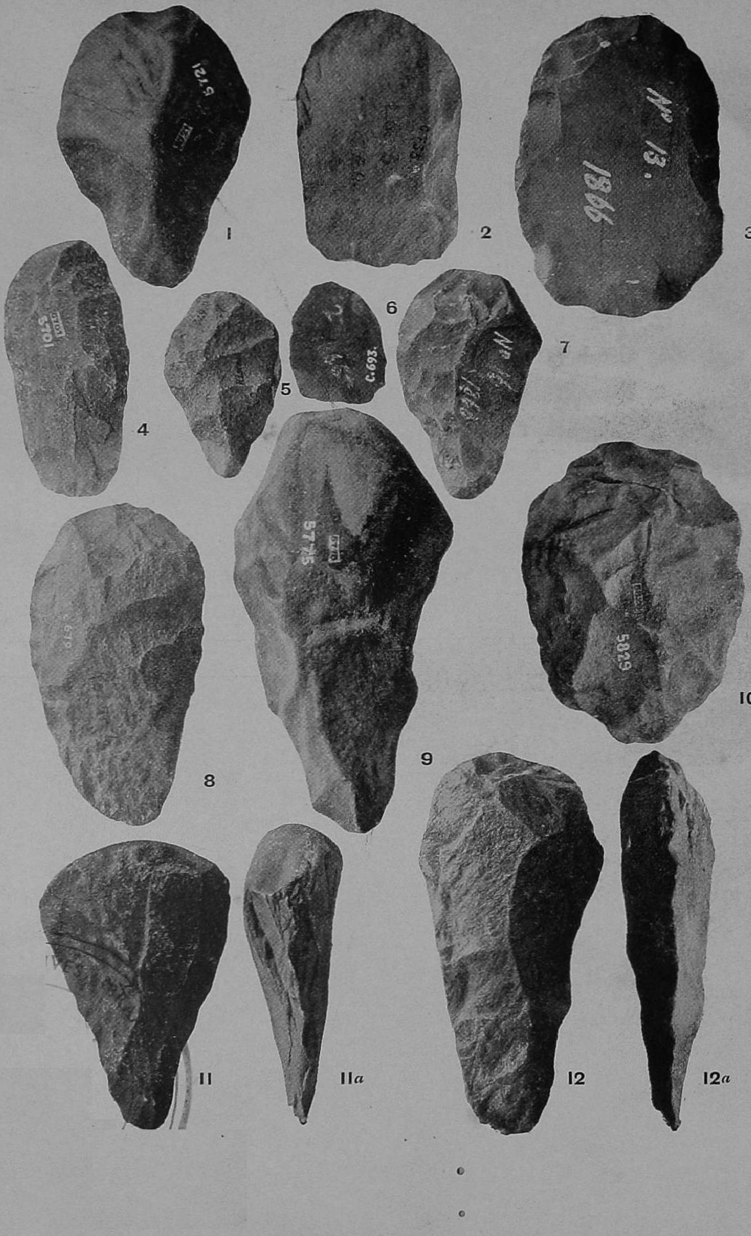
5642. Boucher, medium, broad pointed oval ; coarse dark quartzite.

5643. Boucher, medium, elongated oval edge all round ; dark quartzite.

3DGA—1000—17-5-17—GCEP Simla

PLATE I.

PREHISTORIC IMPLEMENTS IN THE INDIAN MUSEUM, CALCUTTA.



PALAEOLITHIC IMPLEMENTS FROM MADRAS.

(*about* $\frac{1}{3}$ *natural size.*)

Fig.

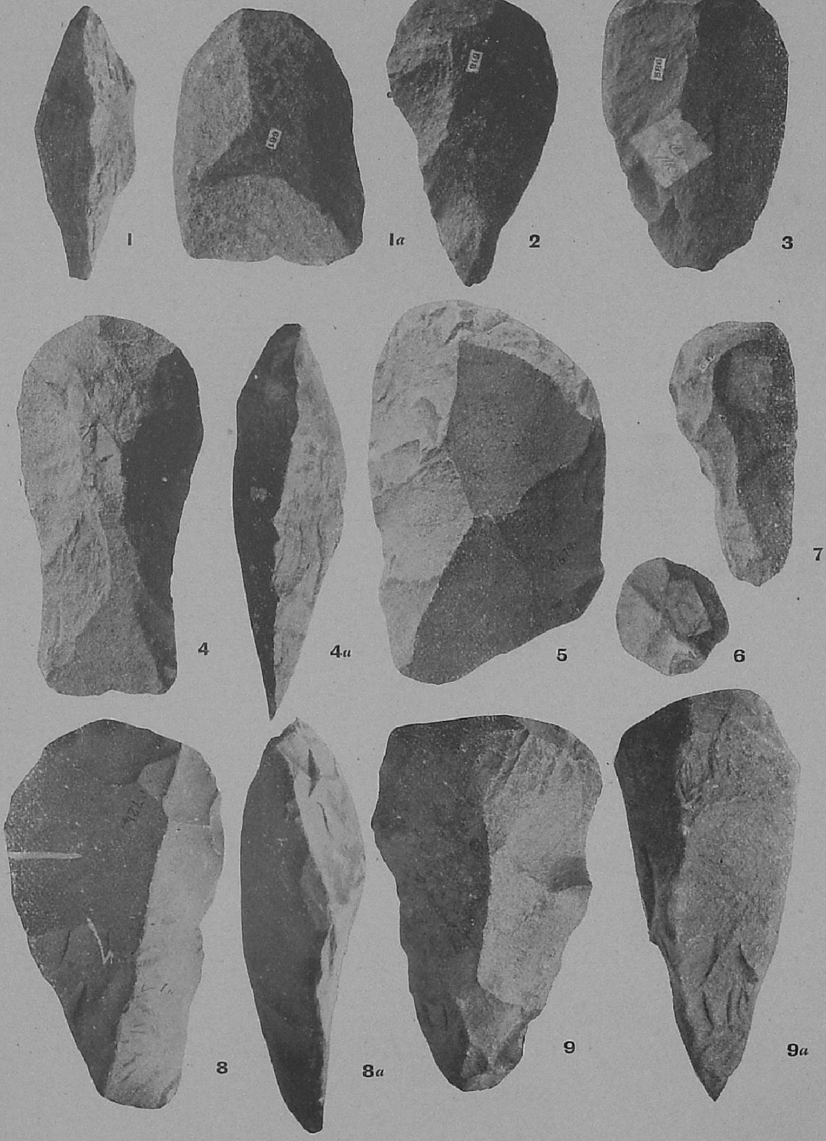
1. Boucher, Cuddapah district, Madras.
2. Palæolith, Rayachoti, Cuddapah district, Madras.
3. Palæolith, Balapilly, Kurnool district, Madras.
4. Boucher, Cuddapah district, Madras.
5. Boucher, Old Kistna district, Madras.
6. Scraper-flake, Madaypoor, Kurnool district, Madras.
7. Boucher, Madaypoor stream, Kurnool district, Madras.
8. Boucher, Roodrar, Kurnool district, Madras.
9. Boucher, Cuddapah district Madras.
10. Boucher, Cuddapah district, Madras.
11. Boucher, Nellore district, Madras.

11a. The same, side view.

12. Boucher, Old Kistna district, Madras.

12a. The same, side view.

PREHISTORIC IMPLEMENTS IN THE INDIAN MUSEUM, CALCUTTA.



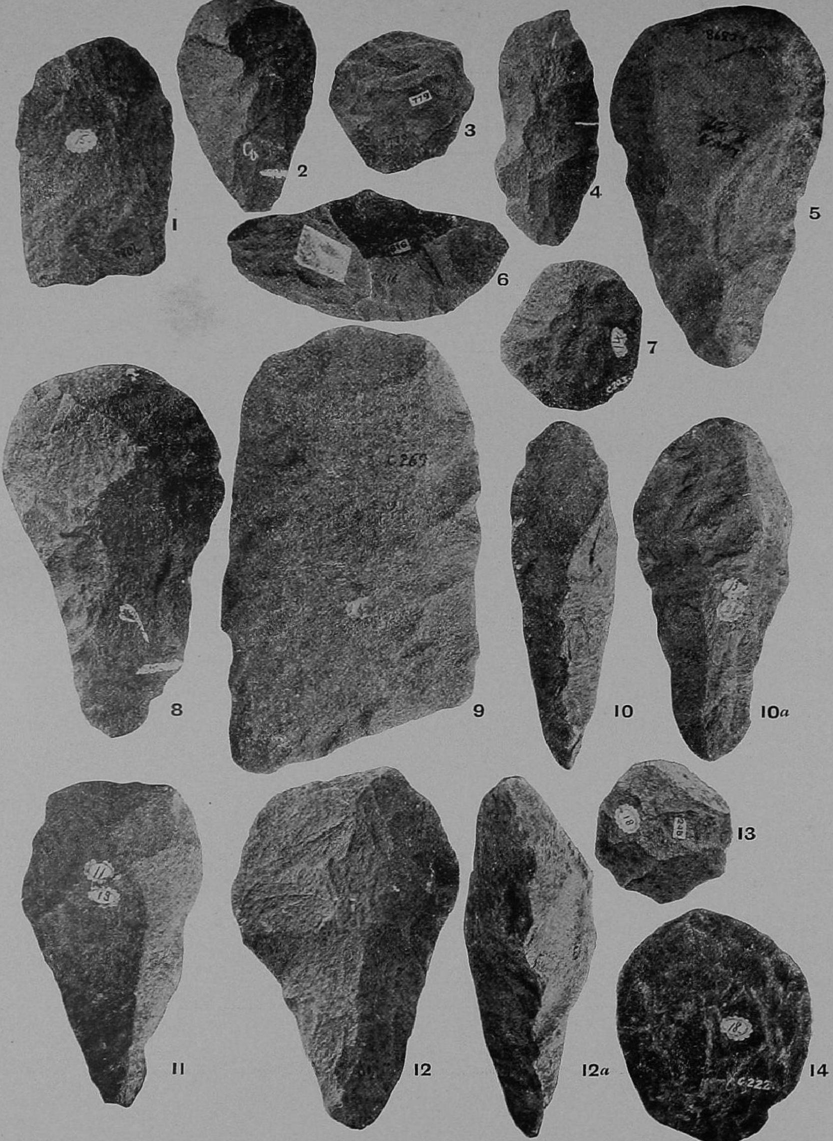
PALAEOLITHIC IMPLEMENTS FROM MADRAS.

(*about* $\frac{1}{3}$ *natural size.*)

Fig.

1. Palæolith, Attrampakkam, Chingleput district, Madras.
1a. The same, face view.
2. Boucher, Attrampakkam, Chingleput district, Madras.
3. Boucher, " " " "
4. Boucher, " " " "
4a. The same, side view.
5. Palæolith, Attrampakkam, Chingleput district, Madras.
6. " " " " "
7. Boucher " " " "
8. Boucher " " " "
8a. The same, side view.
9. Boucher, Attrampakkam, Chingleput district, Madras.
9a. The same, side view.

PREHISTORIC IMPLEMENTS IN THE INDIAN MUSEUM, CALCUTTA.



PALAEOLITHIC IMPLEMENTS FROM MADRAS AND THE SOUTHERN MAHRATTA COUNTRY.

(about $\frac{1}{3}$ natural size.)

Fig.

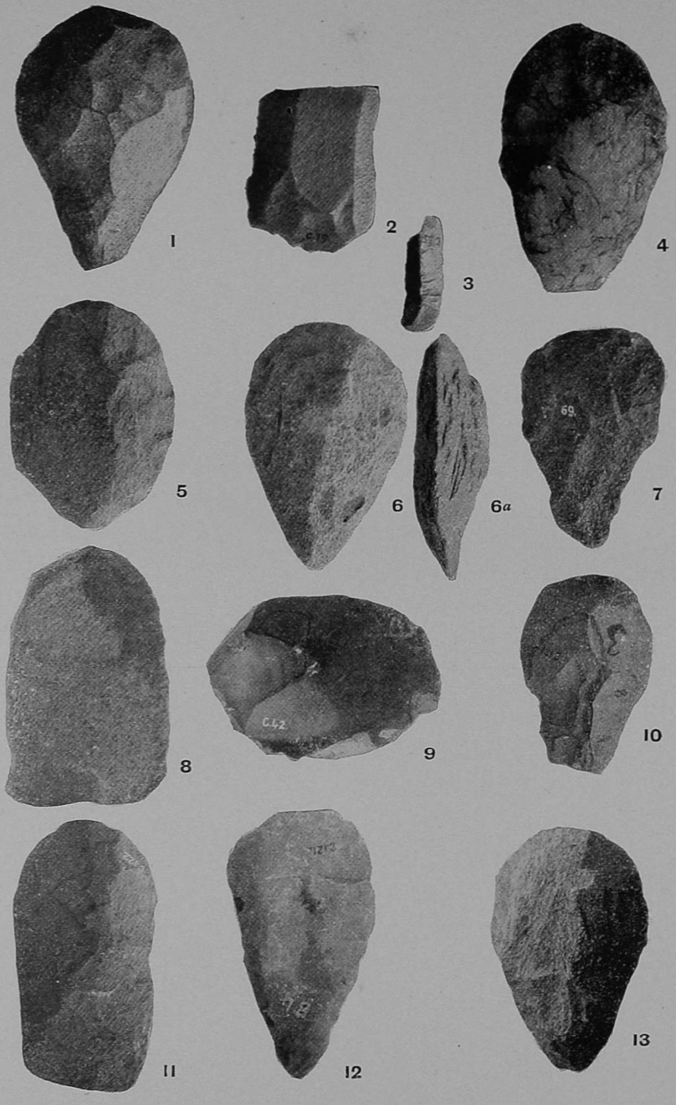
1. Palæolith, Seeroor, Bijapur district, Southern Mahratta Country.
2. Boucher, Attrampakkam, Chingleput district, Madras.
3. Palæolith, Ghatprabha River, Belgaum district.
4. Flake-knife, Attrampakkam, Chingleput district, Madras.
5. Boucher, Malprabha River, Southern Mahratta Country.
6. Scraper or knife, Attrampakkam, Chingleput district, Madras.
7. Palæolith, Tolanmatti, Bijapur district, Southern Mahratta Country.
8. Boucher, Attrampakkam, Chingleput district, Madras.
9. Palæolith, Malprabha River, Southern Mahratta Country.
10. Boucher, Tolur, Belgaum district.

10a. The same, side view.

11. Boucher, Malprabha River, Southern Mahratta Country.
12. Boucher „ „ „ „ „

12a. The same, side view.

13. Palæolith, Malprabha River, Southern Mahratta Country.
14. Palæolith, Malprabha River, Southern Mahratta Country.



PALAEOLITHIC IMPLEMENTS FROM NORTHERN INDIA (CENTRAL).

(about $\frac{1}{3}$ natural size.)

PLATE IV.

Fig.

1.

2. Palæolith, Paloncha, Godavari Valley.

3. Wynne's Agate Chip, Mungi, Godavari Valley.

4. Boucher, Paloncha, Godavari Valley.

5. Palæolith, Bundelkhand.

6. Hackett's Bhutra Boucher, Nerbudda Valley.

6a. The same, side view.

7. Boucher, Burdhana, Saugor district, Central Provinces.

8. Palæolith, Central Provinces.

9. Scraper, Parsora, South East Berar.

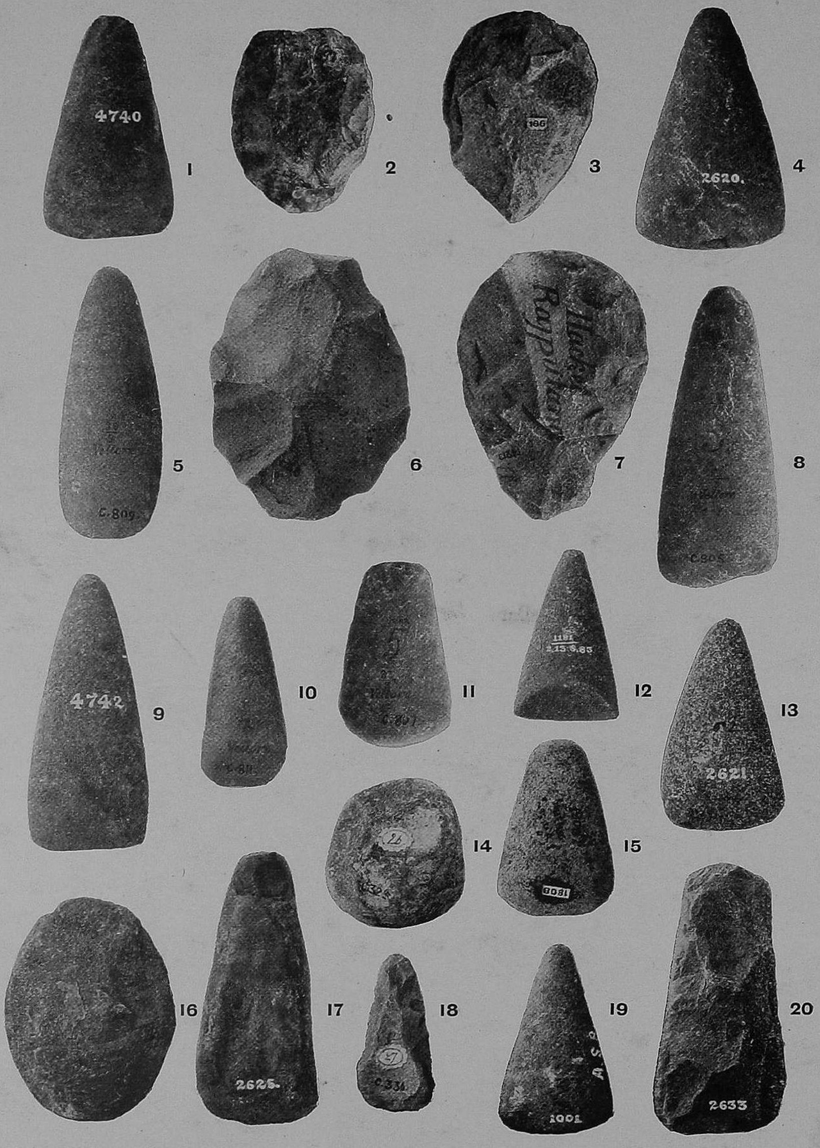
10. Boucher, Bundelkhand.

11. Palæolith, Bundelkhand.

12. Piece of trap, chipped and pecked, Nowgong, Bundelkhand.

13. Boucher, Paloncha, Godavari Valley.

PREHISTORIC IMPLEMENTS IN THE INDIAN MUSEUM, CALCUTTA.



PALAEOLITHIC IMPLEMENTS FROM RAJPUTANA, BIHAR AND ORISSA.
NEOLITHIC IMPLEMENTS FROM NORTHERN AND SOUTHERN INDIA.

(about $\frac{1}{3}$ natural size.)

PLATE V.

Fig.

1. Celt, Tirapetur, Salem district, Madras.
2. Boucher, Jheria coal field.
3. Boucher, Bundi, Rajputana.
4. Celt, Shevaroy Hills, Madras.
5. Celt, Vellore, North Arcot district, Madras.
6. Boucher, Jaipur, Rajputana.
7. Boucher, Jaipur, Rajputana.
8. Celt, Vellore, North Arcot district, Madras.
9. Celt, Tirapatur, Salem district, Madras.
10. Celt, Vellore, North Arcot district, Madras.
11. Celt, Vellore, North Arcot district, Madras.
12. Celt, Shevaroy Hills, Madras.
13. Celt, Shevaroy Hills, Madras.
14. Pounding stone, North Hill, Bellary.
15. Celt, Banda district, United Provinces.
16. Palaeolith, Angul, Orissa.
17. Celt, Gadiganur, Bellary.
18. Celt, Peacock Hill, Bellary.
19. Celt, Manickpore.
20. Gadiganur, Bellary.

PREHISTORIC IMPLEMENTS IN THE INDIAN MUSEUM, CALCUTTA.

INDIAN NEOLITHIC IMPLEMENTS.

(*slightly under* $\frac{1}{3}$ *natural size.*)

PLATE VI.

Fig.

1. Celt, Kalinjar, Banda district, United Provinces.
2. Celt, Kapgal, Bellary.
3. Celt, Mataond, Banda district, United Provinces.
4. Celt, Banda district, United Provinces.
5. Hammerstone, Manickpore, United Provinces.
6. Celt, Peacock Hill, Bellary.
7. Hammerstone, Hutwa, Banda district, United Provinces.
8. Celt, Ramgarh, Banda district, United Provinces.
9. Hammerstone, Hata, Partabganj.
10. Celt, Manickpore, United Provinces.
11. Celt. Banda district, United Provinces.
12. Celt, Peacock Hill, Bellary.
13. Hammerstone, Marpa, Bundelkhand.
14. Celt, North Hill, Bellary,
15. Hammerstone, Banda district, United Provinces.

PREHISTORIC IMPLEMENTS IN THE INDIAN MUSEUM, CALCUTTA.

INDIAN NEOLITHIC IMPLEMENTS.

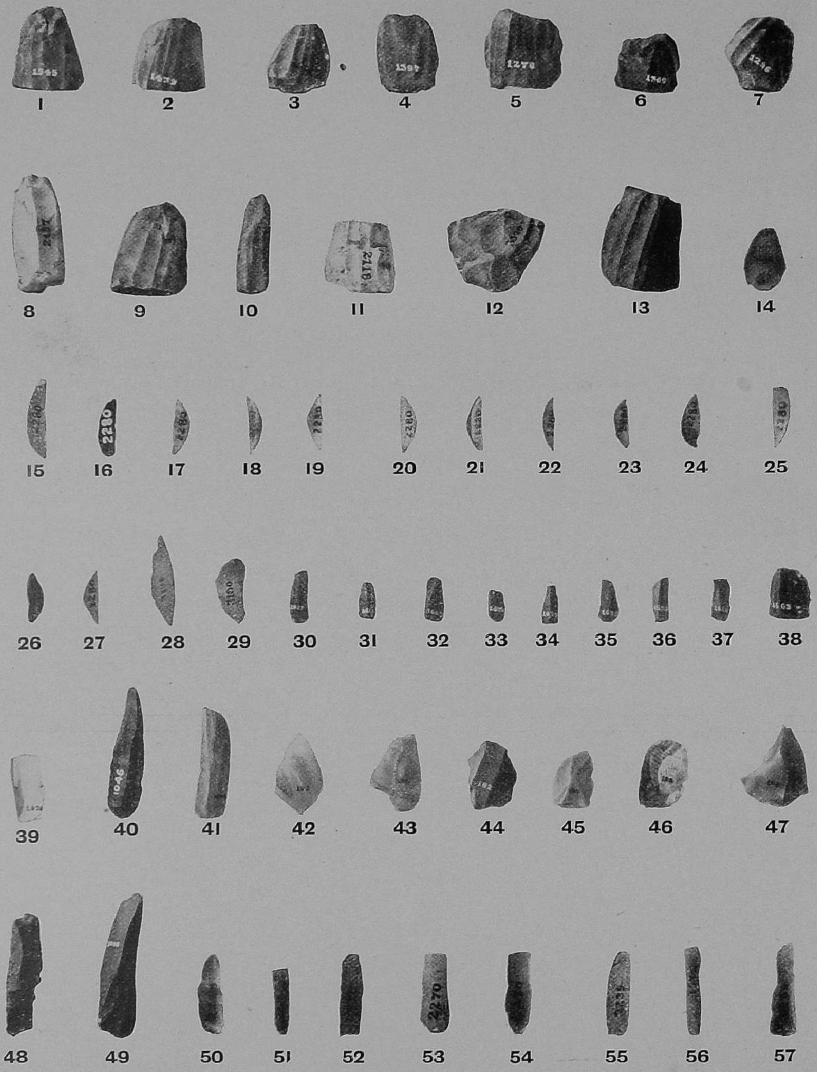
(about $\frac{1}{3}$ natural size.)

PLATE VII.

Fig.

1. Celt, Manbhum, Bihar.
2. Celt, Banda district, United Provinces.
3. Celt, Banda district, United Provinees.
4. Celt, Hazaribagh district, Bengal.
5. Celt, Sarbhai Charkahri, Banda district, United Provinces.
6. Ringstone, Quetta, Baluchistan.
7. Celt, Sihora, Jubbulpore district, Central Provinces.
8. Celt, Banda district, United Provinces.
9. Celt, Banda district, United Provinces.
10. Celt, Shadipur, Attock district, Punjab.
11. Hammerstone, Chandi, Hamirpur district, United Provinces.
12. Hammerstone, Tikari, Hamirpur district, United Provinces.
13. Mealing stone, Alur, Bellary.
14. Hammerstone, Mirzapur district, United Provinces.

PREHISTORIC IMPLEMENTS IN THE INDIAN MUSEUM, CALCUTTA.



INDIAN NEOLITHIC CORES AND FLAKES.

(one-half natural size.)

PLATE VIII.

Fig.

1. Core, Jubbulpore district.
2. Core, Jubbulpore district.
3. Core, " "
4. Core, " "
5. Core, " "
6. Core, " "
7. Core, " "
8. Core, Morahna Pahar, United Provinces.
9. Core, " " " "
10. Core, " " " "
11. Core, " " " "
12. Core, Ranchi, Bihar.
13. Core, Jubbulpore, Central Provinces.
14. Leaf flake, Ranchi, Bihar.

15.–27. Pygmy flakes, Partabganj.

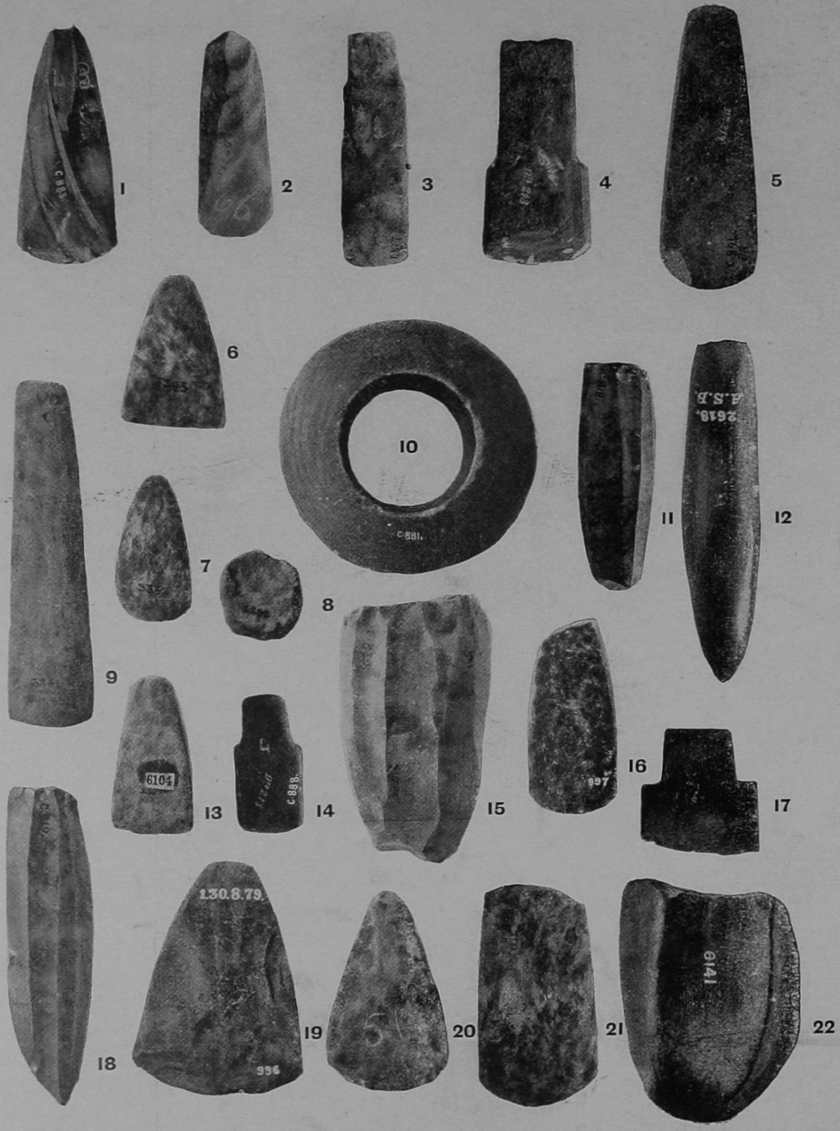
28.–29. Chert flakes, Ranchi, Bihar.

30.–32. Pygmy flakes, Jubbulpore district, Central Provinces.

Fig.

33. }
34. }
35. } Pygmy flakes, Jubbulpore district, Central Provinces.
36. }
37. }
38. Core, Jubbulpore district.
39. Core, " "
40. Chert flake, Jubbulpore district.
41. Chert flake, " "
42. }
43. }
44. }
45. } Agate and jasper flakes, Jubbulpore district, Central Provinces.
46. }
47. }
48. Chert flake, Jubbulpore district.
49. Chert flake, " "
50. Agate flake, Partabganj.
51. Agate flake, "
52. Chert flake, "
53. Chert flake, "
54. Agate flake, "
55. Flake, "
56. Agate flake, "
57. Agate flake, "

PREHISTORIC IMPLEMENTS IN THE INDIAN MUSEUM, CALCUTTA.



INDIAN AND BURMESE NEOLITHIC IMPLEMENTS.

(*about* $\frac{1}{3}$ *natural size.*)

Fig.

1. Celt, Burma.
2. Celt, „
3. Spade celt, Burma.
4. Spade celt, „
5. Spade celt, „
6. Celt, Ranchi, Bihar.
7. Celt, Ranchi, Bihar.
8. Quartzite disc, Ranchi, Bihar.
9. Celt, Jaspur, Chota Nagpur.
10. Ringstone, Burma.
11. Core, Indus bed, Sukkur, Sind.
12. Celt, Chittagong, Bengal.
13. Celt, Tezpur, Assam.
14. Spade celt, Burma.
15. Core, Indus bed, Sukkur, Sind.
16. Celt, Shillong, Assam.
17. Spade celt, Burma.
18. Core, Rohri, Sind.
19. Celt, Shillong, Assam.
20. Celt, Burma.
21. Celt, Assam.
22. Smoothed sandstone, Tezpur, Assam.

PLATE X.

PREHISTORIC IMPLEMENTS IN THE INDIAN MUSEUM, CALCUTTA.

PREHISTORIC INDIAN COPPER AND SILVER ARTICLES.

(*slightly under $\frac{1}{3}$ natural size.*)

PLATE X.

Fig.

1. Copper celt, Gungeria, Central Provinces.
2. Copper celt, Midnapore district, Bengal.
3. Copper celt, Gungeria, Central Provinces.
4. Silver ornament? Gungeria, Central Provinces.
5. Copper celt, Gungeria, Central Provinces.
6. Silver disc, Gungeria, Central Provinces.
7. Copper celt, Gungeria, Central Provinces.
8. Copper celt, Gungeria, Central Provinces.